

# ISO9001 Whitepaper

VMware Cloud on AWS

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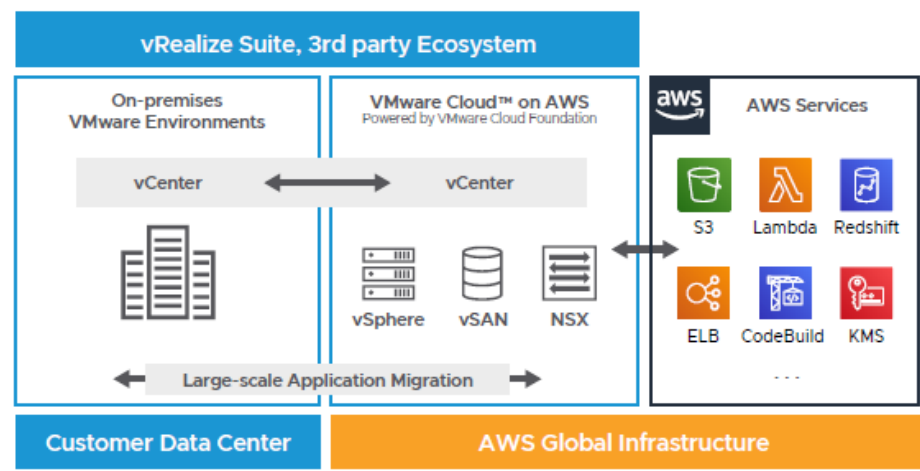
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### Introduction

The ISO9001 standard enables organizations to demonstrate their ability to provide products and services that meet or exceed customer expectations, regulatory requirements and demonstrate continuous improvement. The scope of ISO9001 can vary from a single product to multiple products within an organization. In this whitepaper, we focus on the VMware Cloud on AWS product and demonstrate how our current processes address the requirements in the ISO9001 standard. While VMware Cloud on AWS is yet to undergo the ISO9001 certification, it is already certified for leading standards such as ISO27001, HIPPA, SOC2, PCI-DSS and a range of international certifications such as IRAP (Australia), ISMAP (Japan) OSPAR (Singapore) and MTCS (Singapore). The key requirements for ISO9001 certification is the demonstration of the organization’s Quality Management System meeting the requirements published in the ISO9001 standard. VMware has implemented robust internal processes around development, operation and continuous improvement of the VMware Cloud on AWS services and address several of the requirements published in the ISO9001 standard.

### VMware Cloud on AWS

VMware Cloud on AWS brings VMware’s enterprise class Software-Defined Data Center software to the AWS Cloud, and enables customers to run production applications across VMware vSphere-based environments, with optimized access to AWS services. Jointly engineered by VMware and AWS, this on-demand service enables IT teams to seamlessly extend, migrate, and manage their cloud-based resources with familiar VMware tools without the hassles of learning new skills or utilizing new tools. VMware Cloud on AWS integrates VMware’s flagship compute, storage, and network virtualization products (VMware vSphere, VMware vSAN, and VMware NSX) along with VMware vCenter management, and optimizes it to run on dedicated, elastic, Amazon EC2 bare-metal infrastructure that is fully integrated as part of the AWS Cloud. This service is managed by VMware and is sold by VMware and its partner community. With the same architecture and operational experience on-premise and in the cloud, IT teams can now quickly derive instant business value from the use of AWS and VMware hybrid cloud experience.



### ISO 9001 Quality Management Requirements

In the table below we describe how VMware Cloud on AWS is adopting the ISO9001 requirements in development and operation of our service.

ISO9001 Quality Management Systems requirements	How VMware addresses the requirements
<p><b>4.1 Understanding the organization and its context</b>                      The organization shall determine external and internal issues that are relevant to its purpose and its strategic direction and that affect its ability to achieve the intended result(s) of its quality management system.</p>	<p>VMware Cloud on AWS is a hybrid cloud offering that enables customers to seamlessly migrate it's on-premise workloads to cloud. Quality Management is of significant importance to VMware as we handle customer's critical data. Quality Management for VMware is mainly about creating products and services that deliver or exceed customer value and business objectives. Quality Management at VMware encompasses multiple processes across development, change management, quality engineering, security, risk management and governance.</p> <p>The management philosophy and operating style of VMware encompasses a broad range of characteristics. Such characteristics include management's approach to taking and monitoring business risks, technology risks and evaluating internal and external issues that are relevant to the purpose and strategic objectives of the organization. VMware's leaders and strategy team regularly assess the external environment impacting the service and the new developments across the cloud industry. Any issues impacting the product or organization are discussed during executive meetings and appropriate action plans are developed to remediate the issues.</p>
<p><b>4.2 Understanding the needs and expectations of interested parties</b></p> <p>Due to their effect or potential effect on the organization's ability to consistently provide products and services that meet customer and applicable statutory and regulatory requirements, the organization shall determine:</p> <ul style="list-style-type: none"> <li>a) the interested parties that are relevant to the quality management system;</li> <li>b) the requirements of these interested parties that are relevant to the quality management system.</li> </ul> <p>The organization shall monitor and review information about these interested parties and their relevant requirements.</p>	<p>VMware adopts a customer first philosophy for all its products. Customers are at the center of how we design, build and deliver our products and services. We help customers achieve their goals and structure our platform and services to build upon those successes.</p> <p>Our quality management processes take into considerations understanding of customer's requirements and pain points followed by detailed evaluation of solutions to address these requirements. Several teams including Engineering, Product Management, Compliance and Customer Success are involved in these discussions. These processes are integrated well into the Software Development Life Cycle (SDLC) and enable us to develop products that provide customer value.</p>
<p><b>4.3 Determining the scope of the quality management system</b></p> <p>The organization shall determine the boundaries and applicability of the quality management system to establish its scope.</p>	<p>VMware has standard processes for several key areas such as change management, security testing, disaster recovery and access governance. The scope of these processes cover a range of cloud services including VMware Cloud on AWS and provides several benefits such as operational efficiency, consistent quality, and performance. For the purposes of this whitepaper the scope has been focused on the VMware Cloud on AWS service.</p>

ISO9001 Quality Management Systems requirements	How VMware addresses the requirements
<p><b>4.4 Quality management system and its processes</b></p> <p>4.4.1 The organization shall establish, implement, maintain and continually improve a quality management system, including the processes needed and their interactions, in accordance with the requirements of this International Standard.</p> <p>4.4.2 To the extent necessary, the organization shall:</p> <ul style="list-style-type: none"> <li>a) maintain documented information to support the operation of its processes;</li> <li>b) retain documented information to have confidence that the processes are being carried out as planned.</li> </ul>	<p>VMware has a compliance program in place that is designed after several industry standards and frameworks including ISO27001, ISO 27017, ISO 27018, SOC 2 and HIPAA. The program utilizes internal/external audits as a way to measure the effectiveness of the controls applied to reduce risks associated with safeguarding information and also to identify areas of improvements across products and services. Several key controls across are reviewed during these audits which include Change Management, Access Governance, Risk Management, Supplier Relationships and System Operations. Improvement points and findings from these audits are evaluated and necessary actions are taken to improve the controls and system.</p>
<p><b>5.1 Leadership and commitment</b></p> <p>5.1.1 General</p> <p>Top management shall demonstrate leadership and commitment with respect to the quality management system by:</p> <ul style="list-style-type: none"> <li>a) taking accountability for the effectiveness of the quality management system;</li> <li>b) ensuring that the quality policy and quality objectives are established for the quality management system and are compatible with the context and strategic direction of the organization;</li> <li>c) ensuring the integration of the quality management system requirements into the organization's business processes;</li> <li>d) promoting the use of the process approach and risk-based thinking;</li> <li>e) ensuring that the resources needed for the quality management system are available;</li> </ul>	<p>VMware leadership plays a prominent role in establishing the quality management principles throughout the organization and retaining customer's trust in our products and services. Leaders from various teams are involved maintaining quality of processes and controls under their respective areas, each of them then reporting to a senior leader (SVP, COO and CEO etc). VMware Cloud on AWS leadership collaborates with other teams such as Compliance, Engineering and Corporate Functions to develop a set of formal processes for areas such as product development, testing, support and sales. Some of the key measures our leadership takes to ensure consistent quality include:</p> <ul style="list-style-type: none"> <li>• Developing formal policies and procedures systems development.</li> <li>• Conducting periodic risk assessment and audits of products and services to address any critical quality gaps.</li> <li>• Integrating quality management processes into day-to-day business processes, implementing the need to maintain consistent documentation, standardized processes and maintaining records.</li> <li>• Developing and tracking Objectives &amp; Key Result(s) aka OKRs, a goal-setting framework for defining and tracking objectives and their outcomes.</li> </ul>

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<p><b>5.1.2 Customer focus</b></p> <p>Top management shall demonstrate leadership and commitment with respect to customer focus by ensuring that:</p> <ul style="list-style-type: none"> <li>a) customer and applicable statutory and regulatory requirements are determined, understood and consistently met;</li> <li>b) the risks and opportunities that can affect conformity of products and services and the ability to enhance customer satisfaction are determined and addressed;</li> <li>c) the focus on enhancing customer satisfaction is maintained.</li> </ul>	<p>VMware adopts a customer first philosophy for all its products. Customers are at the center of how we design, build and deliver our products and services. We help customers achieve their goals and structure our platform and services to build upon those successes.</p> <p>Our quality management processes take into considerations understanding of customer’s requirements and pain points followed by detailed evaluation of solutions to address these requirements. Several teams including Engineering, Product Management, Compliance and Customer Success are involved in these discussions. These processes are integrated well into the Software Development Life Cycle (SDLC) and enable us to develop products that provide customer value.</p>
<p><b>5.2 Policy</b></p> <p><b>5.2.1 Establishing the quality policy</b></p> <p>Top management shall establish, implement and maintain a quality policy that:</p> <ul style="list-style-type: none"> <li>a) is appropriate to the purpose and context of the organization and supports its strategic direction;</li> <li>b) provides a framework for setting quality objectives;</li> <li>c) includes a commitment to satisfy applicable requirements;</li> <li>d) includes a commitment to continual improvement of the quality management system.</li> </ul>	<p>VMware has documented policies, standards and process documents covering various processes such as security, change management, access governance and compliance. While a specific quality policy is not currently in place, the above policies support engineering groups in delivering products and services to the desired quality. VMware documents, updates, and maintains baseline configurations for all software and hardware installed in the production environment; changes are governed by a defined change management policy and baseline configurations are securely managed. The policies are reviewed at least once on an annual basis and as part of the audits such as ISO, PCI and SOC2.</p>

ISO9001 Quality Management Systems requirements	How VMware addresses the requirements
<p><b>5.2.2 Communicating the quality policy</b></p> <p>The quality policy shall:</p> <ul style="list-style-type: none"> <li>a) be available and be maintained as documented information;</li> <li>b) be communicated, understood and applied within the organization;</li> <li>c) be available to relevant interested parties, as appropriate.</li> </ul>	<p>VMware has implemented various methods of communication to help provide assurance that employees understand their individual roles and responsibilities. These methods include orientation for new employees, training for employees, and the use of email messages to communicate time sensitive information.</p> <p>VMware utilizes various internal tools for communication of VMware policies. These policies are maintained by the Chief Security Officer, reviewed, and updated on an annual basis.</p> <p>VMware has also implemented various methods of communication to help provide assurance that customers understand the roles and responsibilities in communication of significant events. These methods include service level agreements on the VMware website, external memorandums, and regular meetings with representatives from customers and the use of email messages and other customer contact lines for time sensitive messages.</p>

ISO9001 Quality Management Systems requirements	How VMware addresses the requirements
<p><b>5.3 Organizational roles, responsibilities and authorities</b></p> <p>Top management shall ensure that the responsibilities and authorities for relevant roles are assigned, communicated and understood within the organization.</p> <p>Top management shall assign the responsibility and authority for:</p> <ul style="list-style-type: none"> <li>a) ensuring that the quality management system conforms to the requirements of this International Standard;</li> <li>b) ensuring that the processes are delivering their intended outputs;</li> <li>c) reporting on the performance of the quality management system and on opportunities for improvement (see 10.1), in particular to top management;</li> <li>d) ensuring the promotion of customer focus throughout the organization;</li> <li>e) ensuring that the integrity of the quality management system is maintained when changes to the quality management system are planned and implemented.</li> </ul>	<p>The VMware organizational structure provides the framework within which its activities for achieving the entity-wide objectives are planned, executed, controlled, and monitored.</p> <p>VMware has organizational charts in place to communicate the defined key areas of authority, responsibility, lines of reporting to personnel related to the design, development, implementation, operation, maintenance, and monitoring of the system. These charts are communicated to employees via the company intranet and updated as needed.</p> <p>VMware also maintains documented position descriptions to define the skills, responsibilities, and knowledge levels required for specific jobs.</p> <p>The following key personnel are involved in the design, development, operation, implementation, maintenance and monitoring of VMware Cloud on AWS including quality management:</p> <ul style="list-style-type: none"> <li>• <b>Executive Management:</b> Responsible for overseeing companywide activities, establishing, and accomplishing goals and overseeing objectives</li> <li>• <b>VMware Engineering:</b> Responsible for design, development, documentation, and system test plans</li> <li>• <b>VMware System Reliability Engineering (SRE) team:</b> Responsible for automation, upgrades and patch management, monitoring, maintenance, and troubleshooting</li> <li>• <b>VMware Information Security team:</b> Responsible for security operations, incident management, compliance certification, security audits, and risk analysis.</li> <li>• <b>Global Support Services:</b> Responsible for handling customer support issues and inquiries.</li> <li>• <b>Human resources:</b> Responsible for HR policies, practices, and processes with a focus on the key HR delivery areas (e.g., talent acquisitions, pre-employment screening, employee retention, compensation, benefits, performance management, employee relations, and training and development)</li> <li>• <b>Information Security Compliance:</b> Responsible for driving the compliance assurance programs across VMware. Works with various product teams on compliance certifications and audits.</li> </ul>



ISO9001 Quality Management Systems requirements	How VMware addresses the requirements
<p><b>6 Planning</b></p> <p>6.1 Actions to address risks and opportunities</p> <p>6.1.1 When planning for the quality management system, the organization shall consider the issues referred to in 4.1 and the requirements referred to in 4.2 and determine the risks and opportunities that need to be addressed to:</p> <ul style="list-style-type: none"> <li>a) give assurance that the quality management system can achieve its intended result(s);</li> <li>b) enhance desirable effects;</li> <li>c) prevent, or reduce, undesired effects;</li> <li>d) achieve improvement.</li> </ul>	<p>VMware has considered significant interactions between itself and relevant external parties and risks that could affect the company's ability to provide reliable service to its user entities. Key members of management and operational teams meet on an annual basis to perform the mandatory risk assessment.</p> <p>Risks identified during the risk assessment process are ranked and formally documented along with mitigation strategies. A formal process is documented to guide personnel when performing a risk assessment.</p> <p>VMware has designed and implemented processes to address industry best practices around security and privacy. This requires the identification of applicable regulatory and contractual requirements, technical compliance with information security policies, protection of records, protection of information systems audit tools, and audit controls and reporting. This policy also requires VMware to adhere to the applicable legal, statutory, regulatory, or contractual obligations related to information security and security requirements.</p>
<p><b>6.1.2 The organization shall plan:</b></p> <ul style="list-style-type: none"> <li>a) actions to address these risks and opportunities;</li> <li>b) how to: <ul style="list-style-type: none"> <li>1) integrate and implement the actions into its quality management system processes (see 4.4);</li> <li>2) evaluate the effectiveness of these actions.</li> </ul> </li> </ul> <p>Actions taken to address risks and opportunities shall be proportionate to the potential impact on the conformity of products and services</p>	<p>VMware has a formal risk management process which includes identification and monitoring of risks. All risks are documented into a risk register which is reviewed regularly by the security and compliance teams and any actions needed are followed up through to closure.</p>

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<p><b>6.2 Quality objectives and planning to achieve them</b></p> <p>6.2.1 The organization shall establish quality objectives at relevant functions, levels and processes needed for the quality management system.</p> <p>The quality objectives shall:</p> <ul style="list-style-type: none"> <li>a) be consistent with the quality policy;</li> <li>b) be measurable;</li> <li>c) take into account applicable requirements;</li> <li>d) be relevant to conformity of products and services and to enhancement of customer satisfaction;</li> <li>e) be monitored;</li> <li>f) be communicated;</li> <li>g) be updated as appropriate.</li> </ul> <p>The organization shall maintain documented information on the quality objectives.</p>	<p>VMware has documented policies, standards and process documents covering various processes such as security, change management, access governance and compliance. The policies clearly describe the scope, attributes, purpose and roles and responsibilities of the relevant function. While a specific quality policy is not currently in place, the above policies support engineering groups in delivering products and services to the desired quality. VMware’s policies are reviewed at least once on an annual basis and as part of the audits such as ISO, PCI and SOC2.</p>
<p>6.2.2 When planning how to achieve its quality objectives, the organization shall determine:</p> <ul style="list-style-type: none"> <li>a) what will be done;</li> <li>b) what resources will be required;</li> <li>c) who will be responsible;</li> <li>d) when it will be completed;</li> <li>e) how the results will be evaluated.</li> </ul>	<p>VMware has documented policies, standards and process documents covering various processes such as security, change management, access governance and compliance. The policies clearly describe the scope, attributes, purpose and roles and responsibilities of the relevant function. While a specific quality policy is not currently in place, the above policies support engineering groups in delivering products and services to the desired quality. VMware’s policies are reviewed at least once on an annual basis and as part of the audits such as ISO, PCI and SOC2.</p>

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<p><b>6.3 Planning of changes</b></p> <p>When the organization determines the need for changes to the quality management system, the changes shall be carried out in a planned manner (see 4.4).</p> <p>The organization shall consider:</p> <ul style="list-style-type: none"> <li>a) the purpose of the changes and their potential consequences;</li> <li>b) the integrity of the quality management system;</li> <li>c) the availability of resources;</li> <li>d) the allocation or reallocation of responsibilities and authorities.</li> </ul>	<p>VMware's change management process ensures that appropriate reviews and authorizations are in place prior to implementing any new technologies or changes.</p> <p>Change management policies and processes guide management in authorization of changes. Change requests are documented in the change request tracking system and the required change management fields are completed. Change review and analysis are performed which include a risk assessment and analysis of the impacts of changes and specification of information security controls needed. VMware Change management policy is reviewed at least once on an annual basis.</p>
<p><b>7 Support</b></p> <p><b>7.1 Resources</b></p> <p>7.1.1 General</p> <p>The organization shall determine and provide the resources needed for the establishment, implementation, maintenance and continual improvement of the quality management system.</p> <p>The organization shall consider:</p> <ul style="list-style-type: none"> <li>a) the capabilities of, and constraints on, existing internal resources;</li> <li>b) what needs to be obtained from external providers.</li> </ul>	<p>VMware has various teams such as Engineering, Product and Corporate Functions that are responsible for maintaining the quality and compliance of their processes. The central information security compliance team works with these various teams to drive the compliance programs and continuous monitoring of compliance. On an annual basis VMware reviews the resource plans to determine the need for any additional capabilities or resources to deliver the compliance programs. Where additional resources are needed the teams are augmented with those resources to support the delivery of compliance programs.</p>
<p><b>7.1.2 People</b></p> <p>The organization shall determine and provide the persons necessary for the effective implementation of its quality management system and for the operation and control of its processes.</p>	<p>See response above at 7.1.1</p>

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<p><b>7.1.3 Infrastructure</b></p> <p>The organization shall determine, provide and maintain the infrastructure necessary for the operation of its processes and to achieve conformity of products and services.</p> <p>Infrastructure can include:</p> <ul style="list-style-type: none"> <li>a) buildings and associated utilities;</li> <li>b) equipment, including hardware and software;</li> <li>c) transportation resources;</li> <li>d) information and communication technology.</li> </ul>	<p>VMware provides all its staff with necessary IT infrastructure and equipment needed for their roles. VMware uses AWS data centers for its cloud services. AWS data centers are nondescript facilities with military-grade exterior physical security. All personnel who enter the facility are authorized and verified by government issued ID, two-factor authentication at each ingress point. Each ingress point is monitored by video surveillance, and all access is logged and audited. For further details on AWS data centers see <a href="https://aws.amazon.com/data-center/controls/">Data Centers - Our Controls (amazon.com)</a></p>
<p><b>7.1.4 Environment for the operation of processes</b></p> <p>The organization shall determine, provide and maintain the environment necessary for the operation of its processes and to achieve conformity of products and services.</p> <p>NOTE A suitable environment can be a combination of human and physical factors, such as:</p> <ul style="list-style-type: none"> <li>a) social (e.g. non-discriminatory, calm, non-confrontational);</li> <li>b) psychological (e.g. stress-reducing, burnout prevention, emotionally protective);</li> <li>c) physical (e.g. temperature, heat, humidity, light, airflow, hygiene, noise).</li> </ul> <p>These factors can differ substantially depending on the products and services provided.</p>	<p>VMware's culture is based on a set of shared values expressed through the acronym EPIC2: execution, passion, integrity, customers and community. These values provide a suitable environment for staff to deliver their duties keeping in mind their physical, mental and emotional wellbeing. VMware has developed Health and Wellness Guidelines to keep everyone safe and healthy and minimize the risk of any psychological issues. Employees are encouraged to discuss any psychological concerns with their managers or human resources teams. Regular social interactions (both in-person and virtual) are promoted to keep the teams engaged.</p>

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<p><b>7.1.5 Monitoring and measuring resources</b></p> <p>7.1.5.1 General</p> <p>The organization shall determine and provide the resources needed to ensure valid and reliable results when monitoring or measuring is used to verify the conformity of products and services to requirements.</p> <p>The organization shall ensure that the resources provided:</p> <p>a) are suitable for the specific type of monitoring and measurement activities being undertaken;</p> <p>b) are maintained to ensure their continuing fitness for their purpose.</p> <p>The organization shall retain appropriate documented information as evidence of fitness for purpose of the monitoring and measurement resources.</p>	<p>VMware has formal change management process that enables team to verify the conformity of products and services to requirements. VMware’s change management process includes change risk review and analysis. Changes are categorized into various categories such as Standard, Normal and Emergency which trigger the relevant approval requirements. Depending on the nature of change, they are approved by CAB and ECAB. Change advisory board (CAB): Governing body that exists to advise the change management team on approvals and to assist the Change Manager in the assessment and prioritization of RFCs. Emergency Change advisory board (ECAB): This is a subset of CAB members who make decisions about emergency changes.</p>

ISO9001 Quality Management Systems requirements	How VMware addresses the requirements
<p><b>7.1.5.2 Measurement traceability</b></p> <p>When measurement traceability is a requirement, or is considered by the organization to be an essential part of providing confidence in the validity of measurement results, measuring equipment shall be:</p> <ul style="list-style-type: none"> <li>a) calibrated or verified, or both, at specified intervals, or prior to use, against measurement standards traceable to international or national measurement standards; when no such standards exist, the basis used for calibration or verification shall be retained as documented information;</li> <li>b) identified in order to determine their status;</li> <li>c) safeguarded from adjustments, damage or deterioration that would invalidate the calibration status and subsequent measurement results.</li> </ul> <p>The organization shall determine if the validity of previous measurement results has been adversely affected when measuring equipment is found to be unfit for its intended purpose, and shall take appropriate action as necessary.</p>	<p>VMware has well established controls in place to maintain segregation of duties and protect and control access to all production systems and source code. All code is restricted to authorized personnel only. No code can be inserted into a production release without multiple iterations of reviews, approvals, and security testing.</p> <p>VMware has policies and procedures in place to ensure that test data is not used in production environments. Development, QA, and production all use separate equipment and environments and are managed by separate teams.</p> <p>Customers retain control and ownership of their content. It is the responsibility of each customer to control the movement of their content between their environments and ensure that their production customer content is not replicated to any non-production environment.</p>
<p><b>7.1.6 Organizational knowledge</b></p> <p>The organization shall determine the knowledge necessary for the operation of its processes and to achieve conformity of products and services.</p> <p>This knowledge shall be maintained and be made available to the extent necessary.</p> <p>When addressing changing needs and trends, the organization shall consider its current knowledge and determine how to acquire or access any necessary additional knowledge and required updates.</p>	<p>VMware has a documented policies which are reviewed every 12 months. Policies are augmented by processes, standards, plans, and procedures which are documented and implemented and made available to the relevant staff.</p>

ISO9001 Quality Management Systems requirements	How VMware addresses the requirements
<p><b>7.2 Competence</b></p> <p>The organization shall:</p> <ul style="list-style-type: none"> <li>a) determine the necessary competence of person(s) doing work under its control that affects the performance and effectiveness of the quality management system;</li> <li>b) ensure that these persons are competent on the basis of appropriate education, training, or experience;</li> <li>c) where applicable, take actions to acquire the necessary competence, and evaluate the effectiveness of the actions taken;</li> <li>d) retain appropriate documented information as evidence of competence.</li> </ul>	<p>The VMware organizational structure provides the framework within which its activities for achieving the entity-wide objectives are planned, executed, controlled, and monitored.</p> <p>VMware has organizational charts in place to communicate the defined key areas of authority, responsibility, and lines of reporting to personnel related to the design, development, implementation, operation, maintenance, and monitoring of the system. These charts are communicated to employees via the company intranet and updated as needed.</p> <p>VMware also maintains documented position descriptions to define the skills, responsibilities, and knowledge levels required for specific jobs.</p> <p>VMware has established business conduct guidelines which are communicated to all employees. VMware has established screening procedures, where allowed by local laws VMware performs background checks for new hires. The results are evaluated to determine employment eligibility.</p>
<p><b>7.3 Awareness</b></p> <p>The organization shall ensure that persons doing work under the organization's control are aware of:</p> <ul style="list-style-type: none"> <li>a) the quality policy;</li> <li>b) relevant quality objectives;</li> <li>c) their contribution to the effectiveness of the quality management system, including the benefits of improved performance;</li> <li>d) the implications of not conforming with the quality management system requirements.</li> </ul>	<p>VMware utilizes various internal tools for communication of VMware policies. These policies are maintained by the Chief Security Officer, reviewed, and updated on an annual basis.</p> <p>VMware has also implemented various methods of communication to help provide assurance that staff understand the roles and responsibilities in communication of significant events, in alignment with the ISO 27001 standard, all VMware personnel are required to complete annual security awareness training. Personnel supporting VMware cloud services receive additional role-based security training to perform their job functions in a secure manner.</p>
<p><b>7.4 Communication</b></p> <p>The organization shall determine the internal and external communications relevant to the quality management system, including:</p> <ul style="list-style-type: none"> <li>a) on what it will communicate;</li> <li>b) when to communicate;</li> <li>c) with whom to communicate;</li> <li>d) how to communicate;</li> <li>e) who communicates.</li> </ul>	<p>VMware has implemented various methods of communication to help provide assurance that employees understand their individual roles and responsibilities and that significant events are communicated. These methods include orientation for new employees, training for employees, and the use of email messages to communicate time sensitive information.</p>

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<p>7.5 Documented information</p> <p>7.5.1 General</p> <p>The organization’s quality management system shall include:</p> <p>a) documented information required by this International Standard;</p> <p>b) documented information determined by the organization as being necessary for the effectiveness of the quality management system.</p>	<p>VMware has documented policies and procedures to support development and operational activities, such as documentation/run books for BC/DR, Incident Management, Security and Change Management. Documentation is retained on internal Sharepoint and Confluence pages and is accessible to relevant teams.</p> <p>VMware also provides various documents such as reference architecture and technical documentation to allow customers to understand and run the service. These can be found at <a href="https://cloud.vmware.com/vmc-aws/resources#all-categories">https://cloud.vmware.com/vmc-aws/resources#all-categories</a></p> <p>VMware has also documented various technical documentation supporting VMC on AWS. You can find the most up-to-date technical documentation on the VMware website at: <a href="https://docs.vmware.com/">https://docs.vmware.com/</a></p> <p>VMware’s service description, SLA, and Terms of Service are published online and are reviewed at least once on an annual basis.</p>
<p>7.5.2 Creating and updating</p> <p>When creating and updating documented information, the organization shall ensure appropriate:</p> <p>a) identification and description (e.g. a title, date, author, or reference number);</p> <p>b) format (e.g. language, software version, graphics) and media (e.g. paper, electronic);</p> <p>c) review and approval for suitability and adequacy.</p>	<p>VMware maintains version control for its technical and operational documentation. Internal documentation is retained on the company intranet/confluence pages and external public facing documentation is published on the VMware website. Where applicable the documentation contains author names and dates are published and are reviewed regularly for suitability and adequacy.</p>
<p><b>7.5.3 Control of documented information</b></p> <p>7.5.3.1 Documented information required by the quality management system and by this International Standard shall be controlled to ensure:</p> <p>a) it is available and suitable for use, where and when it is needed;</p> <p>b) it is adequately protected (e.g. from loss of confidentiality, improper use, or loss of integrity).</p>	<p>VMware maintains internal documentation on the company’s intranet/confluence pages and external public facing documentation that is published on the VMware website. Only internal staff from relevant teams have access to any confidential documentation. Public documentation is published online in PDF formats to protect it from any modifications.</p>



ISO9001 Quality Management Systems requirements	How VMware addresses the requirements
<p>7.5.3.2 For the control of documented information, the organization shall address the following activities, as applicable:</p> <ul style="list-style-type: none"> <li>a) distribution, access, retrieval and use;</li> <li>b) storage and preservation, including preservation of legibility;</li> <li>c) control of changes (e.g. version control);</li> <li>d) retention and disposition.</li> </ul>	<p>VMware has data retention guidelines and policy in place. Organizational data is classified, retained and disposed in line with these policies.</p>
<p>8 Operation</p> <p>8.1 Operational planning and control</p> <p>The organization shall plan, implement and control the processes (see 4.4) needed to meet the requirements for the provision of products and services, and to implement the actions determined in Clause 6</p>	<p>VMware controls and processes align with leading international standards such as ISO 27001, SOC2, PCI-DSS, HIPAA and also address various regional compliance requirements. VMware utilizes internal/external audits as a way to measure the effectiveness of the controls applied to reduce risks associated with safeguarding information and also to identify areas of improvement.</p>
<p>8.2 Requirements for products and services</p> <p>8.2.1 Customer communication</p> <p>Communication with customers shall include:</p> <ul style="list-style-type: none"> <li>a) providing information relating to products and services;</li> <li>b) handling enquiries, contracts or orders, including changes;</li> <li>c) obtaining customer feedback relating to products and services, including customer complaints;</li> <li>d) handling or controlling customer property;</li> <li>e) establishing specific requirements for contingency actions, when relevant.</li> </ul>	<p>VMware adopts a customer first philosophy for all its products. Customers are at the center of how we design, build and deliver our products and services. Our customer focus requires constant iteration and data to optimize for a positive experience at every touchpoint in the customer journey.</p> <p>VMware has a dedicated Customer Success team that is responsible for regular liaison with customers and supports them in their adoption of VMware products. The team meets customers on a regular basis to provide updates on new features, address any concerns/issues, obtain customer feedback and handle any customer requirements. These are communicated internally up to management level and necessary actions are taken to meet customer satisfaction.</p>

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<p>8.2.2 Determining the requirements for products and services</p> <p>When determining the requirements for the products and services to be offered to customers, the organization shall ensure that:</p> <ul style="list-style-type: none"> <li>a) the requirements for the products and services are defined, including:                             <ul style="list-style-type: none"> <li>1) any applicable statutory and regulatory requirements;</li> <li>2) those considered necessary by the organization;</li> </ul> </li> <li>b) the organization can meet the claims for the products and services it offers.</li> </ul>	<p>VMware has a dedicated Program Management Office (PMO) team that is responsible for management of the release process. The VMC release process includes identification of product requirements including any applicable statutory and regulatory requirements. VMware has comprehensive testing process covering security tests and functional tests to ensure that features developed are in line with requirements. The release process ensures all applicable activities such as development, testing and releases have gone through relevant approvals prior to the release.</p>
<p>8.2.3.1 The organization shall ensure that it has the ability to meet the requirements for products and services to be offered to customers. The organization shall conduct a review before committing to supply products and services to a customer, to include:</p> <ul style="list-style-type: none"> <li>a) requirements specified by the customer, including the requirements for delivery and post-delivery activities;</li> <li>b) requirements not stated by the customer, but necessary for the specified or intended use, when known;</li> <li>c) requirements specified by the organization;</li> <li>d) statutory and regulatory requirements applicable to the products and services;</li> <li>e) contract or order requirements differing from those previously expressed.</li> </ul>	<p>See response above at 8.2.2</p>
<p><b>8.2.3.2 The organization shall retain documented information, as applicable:</b></p> <ul style="list-style-type: none"> <li>a) on the results of the review;</li> <li>b) on any new requirements for the products and services.</li> </ul>	<p>All documentation pertaining to review of the product releases and requirements are retained on company intranet in line with the data retention policies.</p>

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<p><b>8.2.4 Changes to requirements for products and services</b></p> <p>The organization shall ensure that relevant documented information is amended, and that relevant persons are made aware of the changed requirements, when the requirements for products and services are changed.</p>	<p>VMware has implemented various methods of communication to ensure significant events and changes to products and services are communicated to employees and customers. These methods include email communications, newsletters, online updates, release notes and Slack.</p> <p>VMware utilizes various internal tools for communication of VMware policies. These policies are maintained by the Chief Security Officer, reviewed, and updated on an annual basis.</p> <p>VMware has also implemented various methods of communication to help provide assurance that customers understand the changes in products and services. These methods include service level agreements on the VMware website, external memorandums, and regular meetings with representatives from customers and the use of email messages and other customer contact lines for time sensitive messages.</p>

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<p><b>8.3 Design and development of products and services</b></p> <p><b>8.3.1 General</b></p> <p>The organization shall establish, implement and maintain a design and development process that is appropriate to ensure the subsequent provision of products and services.</p>	<p>VMware has a design and development process in place whereby the planning and executing of product features is managed by Delivery Concepts. Delivery Concepts are long term Business Critical Investments/Technology Areas supporting delivery on key business objectives. Each Delivery Concept includes multiple items that get prioritized each quarter.</p> <p>Each quarter the Product Managers present the planned new features to the wider product management team. Meetings are held to discuss the features in detail and identify the ones which add highest value to customer and organization. The engineering teams are also involved to discuss the technical feasibility and challenges and the UX/UI. Product features are further broken down into individual work items and tickets are raised in the project management tool to initiate the work.</p> <p>The development of features then follow the Change Management procedure which includes change risk review and analysis. Changes are categorized into various categories such as Standard, Normal and Emergency which trigger the relevant approval requirements. Depending on the nature of change, they are approved by CAB and ECAB.</p> <p>Change advisory board (CAB): Governing body that exists to advise the change management team on approvals and to assist the Change Manager in the assessment and prioritization of RFCs.</p> <p>Emergency Change advisory board (ECAB): This is a subset of CAB members who make decisions about emergency changes.</p> <p>VMware has a comprehensive testing process covering security tests and functional tests to ensure that features developed are in line with requirements. The release process ensures all applicable activities such as development, testing and releases have gone through relevant approvals prior to the release.</p>

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<p>8.3.2 Design and development planning</p> <p>In determining the stages and controls for design and development, the organization shall consider:</p> <ul style="list-style-type: none"> <li>a) the nature, duration and complexity of the design and development activities;</li> <li>b) the required process stages, including applicable design and development reviews;</li> <li>c) the required design and development verification and validation activities;</li> <li>d) the responsibilities and authorities involved in the design and development process;</li> <li>e) the internal and external resource needs for the design and development of products and services;</li> <li>f) the need to control interfaces between persons involved in the design and development process;</li> <li>g) the need for involvement of customers and users in the design and development process;</li> <li>h) the requirements for subsequent provision of products and services;</li> <li>i) the level of control expected for the design and development process by customers and other relevant interested parties;</li> <li>j) the documented information needed to demonstrate that design and development requirements have been met.</li> </ul>	<p>A change request must be documented in the change request tracking system and the required change management fields need to be completed.</p> <p>Change review and analysis are performed which include a risk assessment and analysis of the impacts of changes and specification of information security controls needed. Change must be approved by at least one person.</p> <p>VMware Cloud on AWS has a comprehensive testing system that covers the entire lifecycle of the release. Continuous testing occurs on the software development pipelines for individual products and components. VMware generates builds from approved components and runs these through BITs (Basic Integration tests), PVTs (Product Validation Tests), FS Lite (Feature Stress Lite tests) and continuous loop tests for deployment, upgrade, and cluster expansion / reduction across all the supported regions. Additionally, we run performance tests, feature stress tests, security scans, vulnerability tests, and System Tests at scale for every cycle.</p> <p>VMware has also established emergency change management procedures to manage any urgent change requests or response to incidents.</p> <p>Procedures for aborting and recovering from unsuccessful changes are documented. Should the outcome of a change be different to the expected result (as identified in the testing of the change), procedures and responsibilities are noted for the recovery and continuity of the affected areas. Fallback procedures are in place to ensure systems can revert back to what they were prior to the implementation of changes</p> <p>System logging is enabled to record activities that are performed during the migration process. Administrative activities related to migration within vCenter are recorded in vCenter logs. Additional logging can be viewed in the Site Recovery Manager (SRM) Add-on for VMware Cloud on AWS. SRM client log files contain information about the client configuration and related messages in the SRM UI.</p> <p>VMware has well established controls in place to protect and control access to all production systems and source code. Code is restricted to authorized personnel only and is continuously monitored. No code can be inserted into a production release without multiple iterations of reviews, approvals and security testing.</p> <p>VMware Cloud on AWS implements a modern distributed control plane the is deployed in multiple AWS regions which are updated in a CI/CD model that ensures that all components are updated in a timely fashion.</p>

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<p>8.3.3 Design and development inputs</p> <p>The organization shall determine the requirements essential for the specific types of products and services to be designed and developed. The organization shall consider:</p> <ul style="list-style-type: none"> <li>a) functional and performance requirements;</li> <li>b) information derived from previous similar design and development activities;</li> <li>c) statutory and regulatory requirements;</li> <li>d) standards or codes of practice that the organization has committed to implement;</li> <li>e) potential consequences of failure due to the nature of the products and services.</li> </ul>	<p>VMware has a dedicated Program Management Office (PMO) team that is responsible for management of the release process. The VMC release process includes identification of product requirements including any functional and performance requirements, applicable statutory and regulatory requirements and product improvements arising from incidents and audits. VMware has comprehensive testing process covering security tests and functional tests to ensure that features developed are in line with requirements. The release process ensures all applicable activities such as development, testing and releases have gone through relevant approvals prior to the release.</p>
<p>8.3.4 Design and development controls</p> <p>The organization shall apply controls to the design and development process to ensure that:</p> <ul style="list-style-type: none"> <li>a) the results to be achieved are defined;</li> <li>b) reviews are conducted to evaluate the ability of the results of design and development to meet requirements;</li> <li>c) verification activities are conducted to ensure that the design and development outputs meet the input requirements;</li> <li>d) validation activities are conducted to ensure that the resulting products and services meet the requirements for the specified application or intended use;</li> <li>e) any necessary actions are taken on problems determined during the reviews, or verification and validation activities;</li> <li>f) documented information of these activities is retained.</li> </ul>	<p>See response at 8.3.2</p>

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<p>8.3.5 Design and development outputs</p> <p>The organization shall ensure that design and development outputs:</p> <ul style="list-style-type: none"> <li>a) meet the input requirements;</li> <li>b) are adequate for the subsequent processes for the provision of products and services;</li> <li>c) include or reference monitoring and measuring requirements, as appropriate, and acceptance criteria;</li> <li>d) specify the characteristics of the products and services that are essential for their intended purpose and their safe and proper provision.</li> </ul> <p>The organization shall retain documented information on design and development outputs.</p>	<p>See response at 8.3.2</p>
<p>8.3.6 Design and development changes</p> <p>The organization shall identify, review and control changes made during, or subsequent to, the design and development of products and services, to the extent necessary to ensure that there is no adverse impact on conformity to requirements.</p> <p>The organization shall retain documented information on:</p> <ul style="list-style-type: none"> <li>a) design and development changes;</li> <li>b) the results of reviews;</li> <li>c) the authorization of the changes;</li> <li>d) the actions taken to prevent adverse impacts.</li> </ul>	<p>See response at 8.3.2</p>

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<p>8.4 <b>Control of externally provided processes, products, and services</b></p> <p>8.4.1 General</p> <p>The organization shall ensure that externally provided processes, products and services conform to requirements.</p> <p>The organization shall determine the controls to be applied to externally provided processes, products and services when:</p> <ul style="list-style-type: none"> <li>a) products and services from external providers are intended for incorporation into the organization's own products and services;</li> <li>b) products and services are provided directly to the customer(s) by external providers on behalf of the organization;</li> <li>c) a process, or part of a process, is provided by an external provider as a result of a decision by the organization.</li> </ul>	<p>VMware's Security Development Lifecycle processes and change management processes are in place to ensure appropriate reviews and authorizations are in place prior to implementing any new technologies or changes within the production environment. Change management policies and processes are also in place to guide management authorization of changes applied to the production environment. Change management policy is reviewed every 12 months.</p>



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<p>8.4.2 Type and extent of control</p> <p>The organization shall ensure that externally provided processes, products and services do not adversely affect the organization’s ability to consistently deliver conforming products and services to its customers.</p> <p>The organization shall:</p> <ul style="list-style-type: none"> <li>a) ensure that externally provided processes remain within the control of its quality management system;</li> <li>b) define both the controls that it intends to apply to an external provider and those it intends to apply to the resulting output;</li> <li>c) take into consideration:                             <ul style="list-style-type: none"> <li>1) the potential impact of the externally provided processes, products and services on the organization’s ability to consistently meet customer and applicable statutory and regulatory requirements;</li> <li>2) the effectiveness of the controls applied by the external provider;</li> </ul> </li> <li>d) determine the verification, or other activities, necessary to ensure that the externally provided processes, products and services meet requirements.</li> </ul>	<p>VMware has a formal vendor on-boarding process. VMware conducts a security risk assessment on third parties that may have access to VMware’s non-public information prior to working with VMware. Based on risk and business impact, periodic reviews and/or audits are conducted where there is determined to be a change to the third party profile.</p> <p>VMware monitors, reviews, and audits third party service delivery to ensure alignment with agreed level of information security and service delivery in line with the third party agreement.</p> <p>Based on risk and business impact, changes to the provision of services by the third party will be appropriately managed. VMware manages third party relationships and address any deficiencies in the third party’s capabilities to securely deliver the services. Based on the risk and business impact VMware request suppliers to complete third party security questionnaires if not already on file or not updated within the past 12 months.</p>

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<p>8.4.3 Information for external providers</p> <p>The organization shall ensure the adequacy of requirements prior to their communication to the external provider.</p> <p>The organization shall communicate to external providers its requirements for:</p> <ul style="list-style-type: none"> <li>a) the processes, products and services to be provided;</li> <li>b) the approval of:                             <ul style="list-style-type: none"> <li>1) products and services;</li> <li>2) methods, processes and equipment;</li> <li>3) the release of products and services;</li> </ul> </li> <li>c) competence, including any required qualification of persons;</li> <li>d) the external providers' interactions with the organization;</li> <li>e) control and monitoring of the external providers' performance to be applied by the organization;</li> <li>f) verification or validation activities that the organization, or its customer, intends to perform at the external providers' premises.</li> </ul>	<p>See response above at 8.4.2</p>

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<p><b>8.5 Production and service provision</b></p> <p><b>8.5.1 Control of production and service provision</b></p> <p>The organization shall implement production and service provision under controlled conditions. Controlled conditions shall include, as applicable:</p> <ul style="list-style-type: none"> <li>a) the availability of documented information that defines:                             <ul style="list-style-type: none"> <li>1) the characteristics of the products to be produced, the services to be provided, or the activities to be performed;</li> <li>2) the results to be achieved;</li> </ul> </li> <li>b) the availability and use of suitable monitoring and measuring resources;</li> <li>c) the implementation of monitoring and measurement activities at appropriate stages to verify that criteria for control of processes or outputs, and acceptance criteria for products and services, have been met;</li> <li>d) the use of suitable infrastructure and environment for the operation of processes;</li> <li>e) the appointment of competent persons, including any required qualification;</li> <li>f) the validation, and periodic revalidation, of the ability to achieve planned results of the processes for production and service provision, where the resulting output cannot be verified by subsequent monitoring or measurement;</li> <li>g) the implementation of actions to prevent human error;</li> <li>h) the implementation of release, delivery and post-delivery activities.</li> </ul>	<p>VMware’s has formal change management process that implements appropriate checks and controls for release of changes. Change management process includes change risk review and analysis. Changes are categorized into various categories such as Standard, Normal and Emergency which trigger the relevant approval requirements. Depending on the nature of change, they are approved by the Change advisory board.</p> <p>Change requests are documented in the change request tracking system and the required change management fields are completed. Change review and analysis are performed which include a risk assessment and analysis of the impacts of changes and specification of information security controls needed. Change must be approved by at least one person.</p> <p>VMware Cloud on AWS has a comprehensive testing system that covers the entire lifecycle of the release. Continuous testing occurs on the software development pipelines for individual products and components. VMware generates builds from approved components and runs these through BITs (Basic Integration tests), PVTs (Product Validation Tests), FS Lite (Feature Stress Lite tests) and continuous loop tests for deployment, upgrade, and cluster expansion / reduction across all the supported regions. Additionally, we run performance tests, feature stress tests, security scans, vulnerability tests, and System Tests at scale for every cycle. These testing activities enable engineering teams to verify whether the required acceptance criteria have been met.</p> <p>Procedures for aborting and recovering from unsuccessful changes are documented. Should the outcome of a change be different to the expected result (as identified in the testing of the change), procedures and responsibilities are noted for the recovery and continuity of the affected areas. Fallback procedures are in place to ensure systems can revert back to what they were prior to implementation of changes</p> <p>System logging is enabled to record activities that are performed during the migration process. Administrative activities related to migration within vCenter are recorded in vCenter logs. Once the system is in production, the VMware support engineers monitor the system for any failures or issues. Support tickets are raised to resolve in line with operational procedures.</p>

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<p><b>8.5.2 Identification and traceability</b></p> <p>The organization shall use suitable means to identify outputs when it is necessary to ensure the conformity of products and services.</p> <p>The organization shall identify the status of outputs with respect to monitoring and measurement requirements throughout production and service provision.</p> <p>The organization shall control the unique identification of the outputs when traceability is a requirement, and shall retain the documented information necessary to enable traceability.</p>	<p>VMware maintains records of all changes released to the VMware Cloud on AWS system. System logging is enabled to record activities that are performed during the change control and release process. Administrative activities related to migration and release are recorded in the logs.</p> <p>VMware has well established controls in place to protect and control access to all production systems and source code. All code is restricted to authorized personnel only and is continuously monitored. No code can be inserted into a production release without multiple iterations of reviews, approvals and security testing.</p>
<p><b>8.5.3 Property belonging to customers or external providers</b></p> <p>The organization shall exercise care with property belonging to customers or external providers while it is under the organization's control or being used by the organization.</p> <p>The organization shall identify, verify, protect and safeguard customers' or external providers' property provided for use or incorporation into the products and services.</p> <p>When the property of a customer or external provider is lost, damaged or otherwise found to be unsuitable for use, the organization shall report this to the customer or external provider and retain documented information on what has occurred.</p>	<p>VMware does not have access to customer data. VMware has established a shared responsibility model that describes the roles and responsibilities between customers, VMware and AWS. See <a href="#">vmware-shared-responsibility-model-overview-vmware-cloud-on-aws.pdf</a></p>
<p><b>8.5.4 Preservation</b></p> <p>The organization shall preserve the outputs during production and service provision, to the extent necessary to ensure conformity to requirements.</p>	<p>VMware has established a data retention policy. Data pertaining to changes and releases are retained in line with the organization's data retention policy.</p>

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<p><b>8.5.5 Post-delivery activities</b></p> <p>The organization shall meet requirements for post-delivery activities associated with the products and services.</p> <p>In determining the extent of post-delivery activities that are required, the organization shall consider:</p> <ul style="list-style-type: none"> <li>a) statutory and regulatory requirements;</li> <li>b) the potential undesired consequences associated with its products and services;</li> <li>c) the nature, use and intended lifetime of its products and services;</li> <li>d) customer requirements;</li> <li>e) customer feedback.</li> </ul>	<p>VMware has a dedicated Customer Success team that is responsible for regular liaison with customers and supports them in their adoption of VMware products. The team meets customers on a regular basis that provides updates on new features, addresses any concerns/issues, obtains customer feedback and handles any customer requirements. These are communicated internally up to management level and necessary actions are taken to meet customer satisfaction.</p>
<p><b>8.5.6 Control of changes</b></p> <p>The organization shall review and control changes for production or service provision, to the extent necessary to ensure continuing conformity with requirements.</p> <p>The organization shall retain documented information describing the results of the review of changes, the person(s) authorizing the change, and any necessary actions arising from the review.</p>	<p>See response at 8.5.1</p>
<p><b>8.6 Release of products and services</b></p> <p>The organization shall implement planned arrangements, at appropriate stages, to verify that the product and service requirements have been met.</p> <p>The release of products and services to the customer shall not proceed until the planned arrangements have been satisfactorily completed, unless otherwise approved by a relevant authority and, as applicable, by the customer</p>	<p>See response at 8.5.1</p>

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<p><b>8.7 Control of nonconforming outputs</b></p> <p>8.7.1 The organization shall ensure that outputs that do not conform to their requirements are identified and controlled to prevent their unintended use or delivery.</p> <p>The organization shall take appropriate action based on the nature of the nonconformity and its effect on the conformity of products and services. This shall also apply to nonconforming products and services detected after delivery of products, during or after the provision of services.</p>	See response at 8.5.1
<p><b>8.7.2 The organization shall retain documented information that:</b></p> <ul style="list-style-type: none"> <li>a) describes the nonconformity;</li> <li>b) describes the actions taken;</li> <li>c) describes any concessions obtained;</li> <li>d) identifies the authority deciding the action in respect of the nonconformity.</li> </ul>	See response at 8.5.1

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<p><b>9 Performance evaluation</b></p> <p>9.1 Monitoring, measurement, analysis and evaluation</p> <p>9.1.1 General</p> <p>The organization shall determine:</p> <ul style="list-style-type: none"> <li>a) what needs to be monitored and measured;</li> <li>b) the methods for monitoring, measurement, analysis and evaluation needed to ensure valid results;</li> <li>c) when the monitoring and measuring shall be performed;</li> <li>d) when the results from monitoring and measurement shall be analysed and evaluated.</li> </ul> <p>The organization shall evaluate the performance and the effectiveness of the quality management system. The organization shall retain appropriate documented information as evidence of the results.</p>	<p>Monitoring is a process that assesses the quality of internal control performance over time. It involves assessing the design and operation of controls and taking necessary corrective actions. This process is accomplished through ongoing activities, separate evaluation, or a combination of the two. Monitoring activities also include using information from communications from external parties such as user entity complaints and regulatory comments that may indicate problems or highlight areas in need of improvement.</p> <p>In carrying out its regular management activities, operations management obtains evidence that the company’s internal controls continue to function, including error and performance reports.</p> <p>Communications from external parties and customers corroborate internally generated information or indicate problems.</p> <p>Organizational structure and supervisory activities provide oversight of internal control functions and identification of deficiencies.</p> <p>Operations management monitors delegated access to systems providing approval and temporary access to critical systems for system administration functions.</p> <p>VMware utilizes network monitoring applications to analyze network device logs and report possible or actual network security breaches and monitor the central logging.</p> <p>VMware performs periodic vulnerability assessment and performs a penetration test annually to identify and monitor systems for potential security vulnerabilities.</p> <p>Information security personnel perform monitoring of authentication and authorization systems, system audit log collection and analysis, security event management and security incident investigations 24 hours per day, 365 days a year.</p>

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<p>9.1.2 Customer satisfaction</p> <p>The organization shall monitor customers' perceptions of the degree to which their needs and expectations have been fulfilled. The organization shall determine the methods for obtaining, monitoring and reviewing this information.</p>	<p>VMware adopts a customer first philosophy for all its products. Customers are at the center of how we design, build and deliver our products and services. Our customer focus requires constant iteration and data to optimize for a positive experience at every touchpoint in the customer journey. We help customers achieve their goals and structure our platform and services to build upon those successes.</p> <p>Our quality management processes take into consideration the understanding of customer's requirements and pain points followed by a detailed evaluation of solutions to address these requirements. Several teams including Engineering, Product Management, Compliance and Customer Success are involved in these discussions. These processes are integrated well into the Software Development Life Cycle (SDLC) and enable us to develop products that provide customer value.</p>
<p>9.1.3 Analysis and evaluation</p> <p>The organization shall analyse and evaluate appropriate data and information arising from monitoring and measurement.</p> <p>The results of analysis shall be used to evaluate:</p> <ul style="list-style-type: none"> <li>a) conformity of products and services;</li> <li>b) the degree of customer satisfaction;</li> <li>c) the performance and effectiveness of the quality management system;</li> <li>d) if planning has been implemented effectively;</li> <li>e) the effectiveness of actions taken to address risks and opportunities;</li> <li>f) the performance of external providers;</li> <li>g) the need for improvements to the quality management system.</li> </ul>	<p>VMware has dedicated teams to evaluate the effectiveness of the controls and risk management. The team regularly analysis findings identified from internal assessments and monitoring activities to identify improvement opportunities. The findings are documented in the nonconformity tracker. Appropriate personnel are assigned the responsibility for correcting the nonconformity and developing a corrective action plan, overseeing the implementation of the plan, providing updates to management and closing the nonconformity. The nonconformities are discussed with respective business units as part of the interlock meetings.</p>



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<p>9.2 Internal audit</p> <p>9.2.1 The organization shall conduct internal audits at planned intervals to provide information on whether the quality management system:</p> <p>a) conforms to:</p> <p>1) the organization’s own requirements for its quality management system;</p> <p>2) the requirements of this International Standard;</p> <p>b) is effectively implemented and maintained.</p>	<p>VMware has a dedicated Internal Audit team that conducts internal audits on a regular basis. The audits focus on a variety of areas such as cyber, operational functions (such as SOC, Change Management and BC/DR), corporate functions (such as Finance, HR and Procurement) and product specific audits. Results from audits are communicated to senior management and action plans are developed to address issues arising from internal audits.</p>
<p>9.2.2 The organization shall:</p> <p>a) plan, establish, implement and maintain an audit programme(s) including the frequency, methods, responsibilities, planning requirements and reporting, which shall take into consideration the importance of the processes concerned, changes affecting the organization, and the results of previous audits;</p> <p>b) define the audit criteria and scope for each audit;</p> <p>c) select auditors and conduct audits to ensure objectivity and the impartiality of the audit process;</p> <p>d) ensure that the results of the audits are reported to relevant management;</p> <p>e) take appropriate correction and corrective actions without undue delay;</p> <p>f) retain documented information as evidence of the implementation of the audit programme and the audit results.</p>	<p>VMware internal audit function has charter to design and execute a risk-based plan of audits, risk assessments and consultative services for all VMware operations (including financial, operational, compliance, governance and technology focused projects) to evaluate the effectiveness of internal controls and risk management activities.</p> <p>The Internal Audit function prepares and submits an annual internal audit plan, based on an appropriate risk-based and cost-effective methodology, to the Chief Financial Officer and the Audit Committee for review.</p> <p>Internal Audit reports the results of audits and other assessments, and any deficiencies and recommendations, to appropriate management and related parties. The Business units are responsible for submitting timely and satisfactory responses confirming that corrective action, as may be appropriate, has been implemented or planned and indicating associated implementation dates.</p>
<p><b>9.3 Management review</b></p> <p><b>9.3.1 General</b></p> <p>Top management shall review the organization’s quality management system, at planned intervals, to ensure its continuing suitability, adequacy, effectiveness and alignment with the strategic direction of the organization.</p>	<p>Regular meetings are held between VMware management and individual business units to evaluate the performance, effectiveness of the products and services. Appropriate personnel are assigned the responsibility for addressing the issues and developing a corrective action plan, overseeing the implementation of the plan, providing updates to management and closing the nonconformity.</p>

ISO9001 Quality Management Systems requirements	How VMware addresses the requirements
<p>9.3.2 Management review inputs</p> <p>The management review shall be planned and carried out taking into consideration:</p> <ul style="list-style-type: none"> <li>a) the status of actions from previous management reviews;</li> <li>b) changes in external and internal issues that are relevant to the quality management system;</li> <li>c) information on the performance and effectiveness of the quality management system, including trends in:                             <ul style="list-style-type: none"> <li>1) customer satisfaction and feedback from relevant interested parties;</li> <li>2) the extent to which quality objectives have been met;</li> <li>3) process performance and conformity of products and services;</li> <li>4) nonconformities and corrective actions;</li> <li>5) monitoring and measurement results;</li> <li>6) audit results;</li> <li>7) the performance of external providers;</li> </ul> </li> <li>d) the adequacy of resources;</li> <li>e) the effectiveness of actions taken to address risks and opportunities (see 6.1);</li> <li>f) opportunities for improvement.</li> </ul>	<p>See response above at 9.3.1</p>
<p>9.3.3 Management review outputs</p> <p>The outputs of the management review shall include decisions and actions related to:</p> <ul style="list-style-type: none"> <li>a) opportunities for improvement;</li> <li>b) any need for changes to the quality management system;</li> <li>c) resource needs.</li> </ul> <p>The organization shall retain documented information as evidence of the results of management reviews.</p>	<p>See response above at 9.3.1</p>

ISO9001 Quality Management Systems requirements	How VMware addresses the requirements
<p><b>10 Improvement</b></p> <p><b>10.1 General</b></p> <p>The organization shall determine and select opportunities for improvement and implement any necessary actions to meet customer requirements and enhance customer satisfaction.</p> <p>These shall include:</p> <ul style="list-style-type: none"> <li>a) improving products and services to meet requirements as well as to address future needs and expectations;</li> <li>b) correcting, preventing or reducing undesired effects;</li> <li>c) improving the performance and effectiveness of the quality management system.</li> </ul>	<p>VMware adopts a customer first philosophy for all its products. Customers are at the center of how we design, build and deliver our products and services. Our customer focus requires constant iteration and data to optimize for a positive experience at every touchpoint in the customer journey.</p> <p>VMware has a dedicated Customer Success team that is responsible for regular liaison with customers and supports them in their adoption of VMware products. The team meets customers on a regular basis, provides updates on new features, addresses any concerns/issues, obtains customer feedback and handles any customer requirements. These are communicated internally up to management level and necessary actions are taken to meet customer satisfaction.</p>

ISO9001 Quality Management Systems requirements	How VMware addresses the requirements
<p>10.2 Nonconformity and corrective action</p> <p>10.2.1 When a nonconformity occurs, including any arising from complaints, the organization shall:</p> <ul style="list-style-type: none"> <li>a) react to the nonconformity and, as applicable:                             <ul style="list-style-type: none"> <li>1) take action to control and correct it;</li> <li>2) deal with the consequences;</li> </ul> </li> <li>b) evaluate the need for action to eliminate the cause(s) of the nonconformity, in order that it does not recur or occur elsewhere, by:                             <ul style="list-style-type: none"> <li>1) reviewing and analysing the nonconformity;</li> <li>2) determining the causes of the nonconformity;</li> <li>3) determining if similar nonconformities exist, or could potentially occur;</li> </ul> </li> <li>c) implement any action needed;</li> <li>d) review the effectiveness of any corrective action taken;</li> <li>e) update risks and opportunities determined during planning, if necessary;</li> <li>f) make changes to the quality management system, if necessary.</li> </ul> <p>Corrective actions shall be appropriate to the effects of the nonconformities encountered.</p>	<p>Regular meetings are held between VMware management and individual business units to evaluate the performance, effectiveness of the products and services. Appropriate personnel are assigned the responsibility for addressing the issues and developing a corrective action plan, overseeing the implementation of the plan, providing updates to management and closing the nonconformity.</p>
<p>10.2.2 The organization shall retain documented information as evidence of:</p> <ul style="list-style-type: none"> <li>a) the nature of the nonconformities and any subsequent actions taken;</li> <li>b) the results of any corrective action.</li> </ul>	<p>VMware maintains a non-conformities tracker where any non-conformities arising from audits and assessments are documented. Each nonconformity is assigned an owner and is tracked regularly for updates and closure.</p>
<p><b>10.3 Continual improvement</b></p> <p>The organization shall continually improve the suitability, adequacy and effectiveness of the quality management system.</p>	<p>VMware regularly conducts internal and external assessments of key systems to identify opportunities for improvement. Results from the assessments are communicated to the system owners and key management personnel and opportunities for improvement.</p>



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