The application and infrastructure delivery automation IT outcome provides faster delivery of applications and services across multiple hardware platforms, hypervisors, and cloud environments, with support for continuous updates.

**BENEFITS**

Adopting VMware solutions to automate the delivery of infrastructure and applications enables the following results:

- **Self-service provisioning with dramatically improved service delivery time across physical, virtual, and cloud-based environments**
- **Rapid deployment of infrastructure, middleware, and applications: Model once, deploy anywhere**
- **Cost tracking and cost modeling**
- **Support for continuous updates and patches (day 2 operations)**
- **Accelerated application release management and reduced time to market with improved profitability**

**Application and Infrastructure Delivery Automation**

IT organizations must deliver applications and IT services to their customers more quickly and more efficiently. Faced with increasing competitive pressures and the accelerating pace of business in the mobile cloud era, IT consumers expect to be able to go online, request a new application or compute resource, and receive it in a matter of minutes, not days or weeks. If IT cannot deliver this level of service, users look for alternatives, such as public clouds, to meet their needs. This potentially puts the business at risk as sensitive application workloads are unknowingly deployed without IT visibility and control. If left unchecked, this can quickly become costly, inefficient, and counterproductive.

Application and infrastructure delivery automation empowers IT to implement a comprehensive cloud management platform to accelerate the delivery and ongoing management of personalized, business-relevant infrastructure, application, and custom services while improving overall IT efficiency. Policy-based governance and logical application modeling ensures that multivendor, multicloud services are delivered at the right size and service level for the task that must be performed. Full life cycle management ensures that resources are maintained at peak operating efficiency. Release automation enables multiple application deployments to be kept in sync through the development and deployment process.

Through the successful implementation of the application and infrastructure delivery automation IT outcome, businesses can achieve the following results:

- **Agility** – Automate IT service delivery—applications, infrastructure, desktops, and any custom service—to rapidly respond to business needs.
- **Control** – Enforce application deployment standards, resource quotas, and service levels via personalized and business-relevant policies.
- **Choice** – Protect investments in current and future technologies via broad multivendor, multicloud support and extensible design.
- **Efficiency** – Improve IT service delivery while lowering costs.
Stage 1: Infrastructure as a Service

VMware vCloud Suite Advanced
VMware vRealize Suite Advanced

Server virtualization has significantly helped IT organizations satisfy the growing need to provision large numbers of virtual machines in relatively short periods of time. However, there continues to be a heavy reliance on manual coordination and postdeployment customization activities, a time-consuming process that impedes IT’s ability to quickly deploy new workloads.

In stage 1 of the application and infrastructure delivery automation outcome, the reliance on manual coordination and per–virtual machine postdeployment customization activities is eliminated as VMware vCloud® Suite Advanced is utilized to streamline and fully automate the deployment and configuration of on-premises infrastructure workloads and services based on VMware vSphere®. This capability is further extended to physical and cloud-based workloads using VMware vRealize™ Suite Advanced.

Stage 1 enables IT to deliver a fully automated and personalized self-service experience through the ability to achieve the following results:

- Deliver infrastructure and infrastructure-related services through a unified IT service catalog
- Meet specific business needs at the right service level with personalized, policy-based governance
- Automate and accelerate IT service delivery including life cycle management and infrastructure costing

VMware vCloud Air

When combined with VMware vCloud Air™, these benefits can seamlessly extend beyond the local data center and out to the hybrid cloud, enabling choice of deployment. Having the advantage of knowing that workloads are compliant, secured, and configured the same way regardless of where they are deployed, users can partner with IT to leverage the benefits of cloud computing rather than feeling compelled to shop around.

<table>
<thead>
<tr>
<th>CAPABILITY</th>
<th>PRODUCT</th>
<th>FEATURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automated Infrastructure</td>
<td>vCloud Suite Advanced</td>
<td>Personalized Self-Service Portal</td>
</tr>
<tr>
<td>Provisioning</td>
<td>vRealize Suite Advanced</td>
<td></td>
</tr>
<tr>
<td>Hybrid Cloud</td>
<td>vCloud Air</td>
<td>Seamless Cloud Integration</td>
</tr>
</tbody>
</table>

Stage 2: Application and Middleware Delivery Automation with Seamless Extensibility

VMware vCloud Suite Enterprise
VMware vRealize Suite Enterprise

In stage 2, we extend the infrastructure-as-a-service capabilities to include middleware and application components. Leveraging VMware vCloud Suite Enterprise and VMware vRealize Suite Enterprise, IT can scale the automated self-service experience to include the automated provisioning of these components.

As with infrastructure, middleware and application templates are created and maintained in the service catalog and are made available to business users through the personalized self-service portal. These templates, or “blueprints,” capture the topology of the complete application, including the deployment and configuration of complex multitiered applications.

Combining preconfigured application blueprints with virtual machine blueprints greatly streamlines the deployment process. Deployment times are significantly reduced, errors and misconfigurations are eliminated, and the quality and consistency of the deployed workloads are increased. Governance policies are determined in advance, eliminating the need for each new deployment request to be revisited and reviewed for approval.

After deployment, day 2 operations are layered on top of this process. Updates to middleware and application blueprints—applied to existing and new workloads—are as easy as updating a component on the relevant blueprint. This enables applications to be scaled and modified while also ensuring that proper checks and balances are in place so dependencies are met during these updates.

The self-service portal provides an easy way to automate the request-and-provisioning process for all deployment-related resources and services.
If an updated service or application change must be rolled back, simply initiate a rollback process, complete the rollback wizard, and review the changes to be made before implementation.

**Extensibility with Third-Party Integration**

For private and hybrid clouds to be successful, they must integrate and work with the existing IT management infrastructure and best practices. Stage 2 offers interoperability with a broad spectrum of deployment and management technologies including VMware solutions such as VMware NSX™ and VMware Virtual SAN™ as well as third-party products.

- **VMware NSX** – Update application blueprints to include configuring network switches and routers, creating security groups and protected firewall groups, as well as adding availability and performance components to an application through logical load balancer pools.

- **Virtual SAN** – Extend self-service consumption capabilities to include defining and enforcing storage capacity, availability, and performance requirements.

- **Third-party integration** – Further extend the ability to customize to existing partnerships with Puppet Labs, Opscode/Chef, and SaltStack.

---

<table>
<thead>
<tr>
<th>CAPABILITY</th>
<th>PRODUCT</th>
<th>FEATURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automated Middleware and Application Delivery</td>
<td>vCloud Suite Enterprise, vRealize Suite Enterprise</td>
<td>Acceleration of application delivery with support for day 2 operations</td>
</tr>
<tr>
<td>Extensibility with Third-Party Integration</td>
<td>Virtual SAN, VMware NSX, Puppet, Opscode/Chef, SaltStack, and so on</td>
<td>Provisioning of network services, definition and enforcement of storage capabilities, integration with existing tools</td>
</tr>
</tbody>
</table>

**Stage 3: Continuous Application Delivery**

**VMware vRealize Code Stream**

Stage 3 extends the capabilities of the application and infrastructure delivery automation outcome to software developers by enabling development and operations (DevOps) teams to become faster and more efficient at the application delivery process with VMware vRealize Code Stream™.

In recent years, many companies have implemented agile development processes with continuous integration and smaller, more frequent releases. Although developers are getting faster at turning out code, getting that code through the various stages from development to production remains a huge challenge for most companies. Manual processes that worked well with release cycles of 9 to 12 months can’t stand up to the demands of quarterly, monthly, or even more frequent releases.

vRealize Code Stream is an application-release automation and continuous delivery solution that enables developers and operations teams to release software more frequently and efficiently while leveraging their investments in existing developer and operations tools. vRealize Code Stream is a complementary offering that extends automation to the entire release process. Beyond provisioning, it provides continuous integration, test, and repository solutions to push new software automatically from development and test to staging and production environments, eliminating the time and errors typically associated with manual procedures and handoffs.
VMware IT Outcomes:
Application and Infrastructure Delivery Automation

<table>
<thead>
<tr>
<th>CAPABILITY</th>
<th>PRODUCT</th>
<th>FEATURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Framework for Provisioning and Software</td>
<td>vRealize Code</td>
<td>Streamlined, automated software delivery process</td>
</tr>
<tr>
<td>Delivery</td>
<td>Stream</td>
<td>Modeling and execution of release pipelines</td>
</tr>
<tr>
<td>Continuous Delivery</td>
<td>vStream</td>
<td>Consistent view across release stages</td>
</tr>
<tr>
<td>Visibility Across Releases</td>
<td>Streamlined,</td>
<td>Out-of-the-box integration with JFrog Artifactory, Jenkins, yum, and Git</td>
</tr>
<tr>
<td>Continuous Integration Tools</td>
<td>automated software delivery process</td>
<td></td>
</tr>
</tbody>
</table>

Summary

The application and infrastructure delivery automation IT outcome provides faster delivery of applications and services across multiple hardware platforms, hypervisors, and cloud environments, with support for continuous updates.

By realizing the three stages of the application and infrastructure delivery automation IT outcome presented here, users will achieve the following results:

- Automated delivery and life cycle management of infrastructure, middleware, and application services while maintaining policy-based control
- Provisioning and management of IT services across physical, virtual, and cloud-based infrastructures, with consistent management experience
- Interoperability with a broad spectrum of deployment and management technologies including VMware NSX and VMware Virtual SAN
- Accelerated application releases for business agility

About IT Outcomes

VMware IT outcomes provide a framework that ties select VMware solutions to key results that customers can expect when adopting the VMware software-defined data center (SDDC) vision.

With VMware, IT organizations can achieve critical results, or outcomes, with unique capabilities that help IT respond to business requests quickly and cost-effectively, without compromising security, control, or choice.

For more information on VMware SDDC IT outcomes, visit vmware.com/it-outcomes.