Another factor increasing Microsoft costs is the need for various third-party software products to fill functionality gaps that exist between vSphere with Operations Management and a Hyper-V with System Center solution (see Figure 6). Products that add features such as better monitoring, network virtualization, backup, and disaster recovery are required to make up for Microsoft shortcomings.

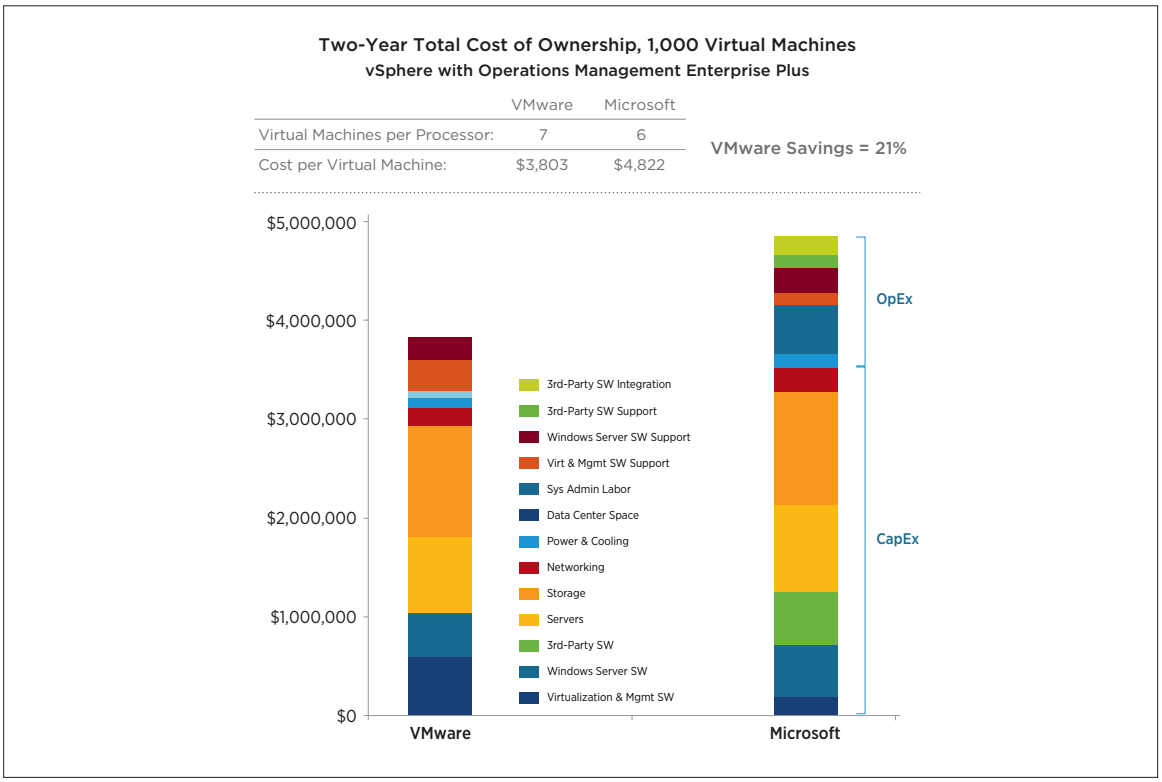

Figure 6: VMware Delivers Lower TCO[4]

VMware provides a TCO Comparison Calculator for small and large enterprises to evaluate the true costs of the best server virtualization and private cloud solution. Within the calculator, inputs include the number of virtual machines, baseline virtual machine density, VMware product edition, and server and storage hardware profiles. The calculator provides a detailed breakdown of

- CapEx cost components such as software licenses, physical infrastructure, and third-party software plus integration costs
- OpEx cost components including system administrator labor expenses and annual software support and maintenance

For enterprises considering or already running more than one hypervisor, analysts warn that managing multiple hypervisors adds complexity. Switching virtualization platforms can also be an expensive undertaking because of the hidden costs associated with designing a parallel software infrastructure, setting up duplicate hardware infrastructure, and testing each virtual machine as it is migrated. Moreover, many management tasks automatically performed in vSphere must be handled manually in competing systems, which can increase a system administrator's workload.

4. VMware. "TCO Comparison Calculator," http://www.vmware.com/go/tcocalculator.