Solution Showcase

Managing Application-centric IT for Hybrid Cloud

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Abstract: The IT landscape is shifting from an infrastructure-centric view to an application-centric view and enterprises are looking for this shift to be reflected in the features of their systems management tools. Hybrid cloud is defined by application management, enabling the application-centric view of IT. IT is also looking for key features from systems management solutions, starting with application performance monitoring. Uila has developed a product that provides unprecedented application-centric data center infrastructure visibility and analytics across mixed environments by bringing together physical and virtualized infrastructure, networking, end-user experience monitoring, and application performance monitoring. With Uila, enterprise organizations are now empowered with a single-click application root cause insight and analysis solution to optimize entire IT environments.

The Shift to Application-centric IT

As companies continue to leverage new technologies, including public cloud services and a more agile application or business service development model, IT has begun the transition away from managing the infrastructure that supports applications, to managing the applications that impact the infrastructure. This shifts IT from an infrastructure-centric operating model to an application-centric model. This shift is critical as digital transformation has changed the expectations of end-users, where the application is now seen as the endpoint of what IT provides, and management needs to start with how the end-users see and use applications.

Part of the shift to application-centric IT is the ubiquitous spread of hybrid cloud. Hybrid cloud leverages existing on-premises resources, in addition to public cloud resources, to deliver applications and services with speed and agility across the entire stack. Hybrid cloud also allows IT to optimize its efficiencies by leveraging the best resources for the most impact for each application. It is the application-centric hybrid cloud that enables the business to shift from just keeping the lights on to becoming a business accelerator.

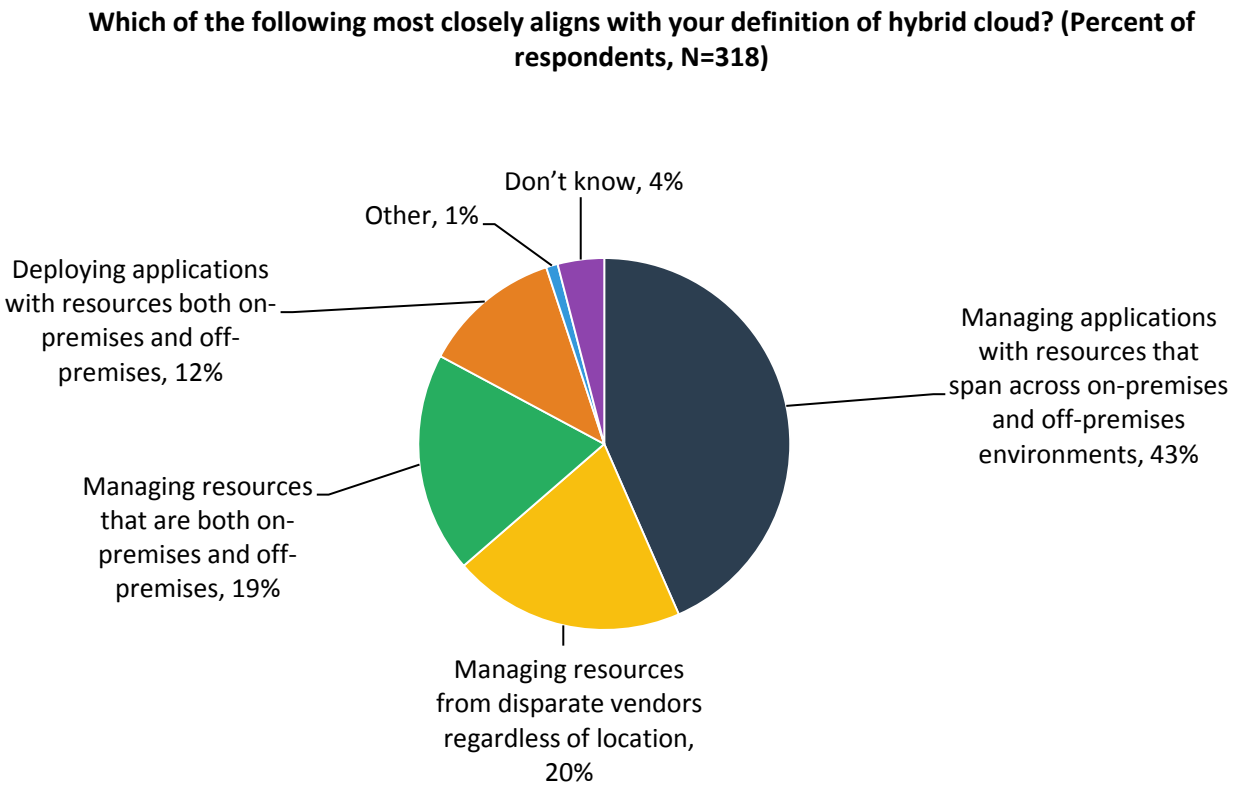
What Is the Definition of Hybrid Cloud?

The shift to application-centric IT can be seen in the way in which enterprises define hybrid cloud. A question that organizations grapple with is whether hybrid cloud is just the continued management of resources in both on- and off-premises environments or whether it is more focused on the applications that span those environments.

ESG has conducted research on the hybrid cloud, systems management, and their impact on IT today. ESG surveyed 318 IT decision makers, with knowledge of and/or responsibility for systems management or cloud infrastructure strategy at midmarket (i.e., 100 to 999 employees) and enterprise (i.e., 1,000 or more employees) organizations in North America.

Research respondents were asked to choose the description that most closely aligns with their definition of hybrid cloud (see Figure 1).[1]

Figure 1. Hybrid Cloud Definition



Source: Enterprise Strategy Group, 2017

The largest percentage of respondents said that hybrid cloud involves the management of applications with resources that span across on-premises and off-premises environments. This definition was selected by more than twice the respondents as any other definition. Twelve percent of respondents selected the definition of hybrid cloud regarding deploying applications with resources both on-premises and off-premises. Both application-centric responses, when combined, represent over half of the survey respondents. These results show that organizations' perception of hybrid cloud is focused more on applications and the resources supporting them than on resource management.

The shift seen in these results is critical because the need to manage applications as opposed to infrastructure is a significant change for systems management. With an application-centric view, IT now monitors and manages the applications and performance for the end-user, and then optimizes and remediates the infrastructure supporting the applications, as opposed to monitoring and managing the infrastructure, which then impacts application performance. With an application-centric hybrid cloud, enterprises can focus on delivering application performance rather than infrastructure performance.

Still, these results do not mean that resource management is not important for hybrid cloud. In fact, the ability to manage, optimize, and remediate the infrastructure is just as important as it was in an infrastructure-centric world. The shift is more about where the top-level management and performance monitoring is handled. An application-centric hybrid becomes

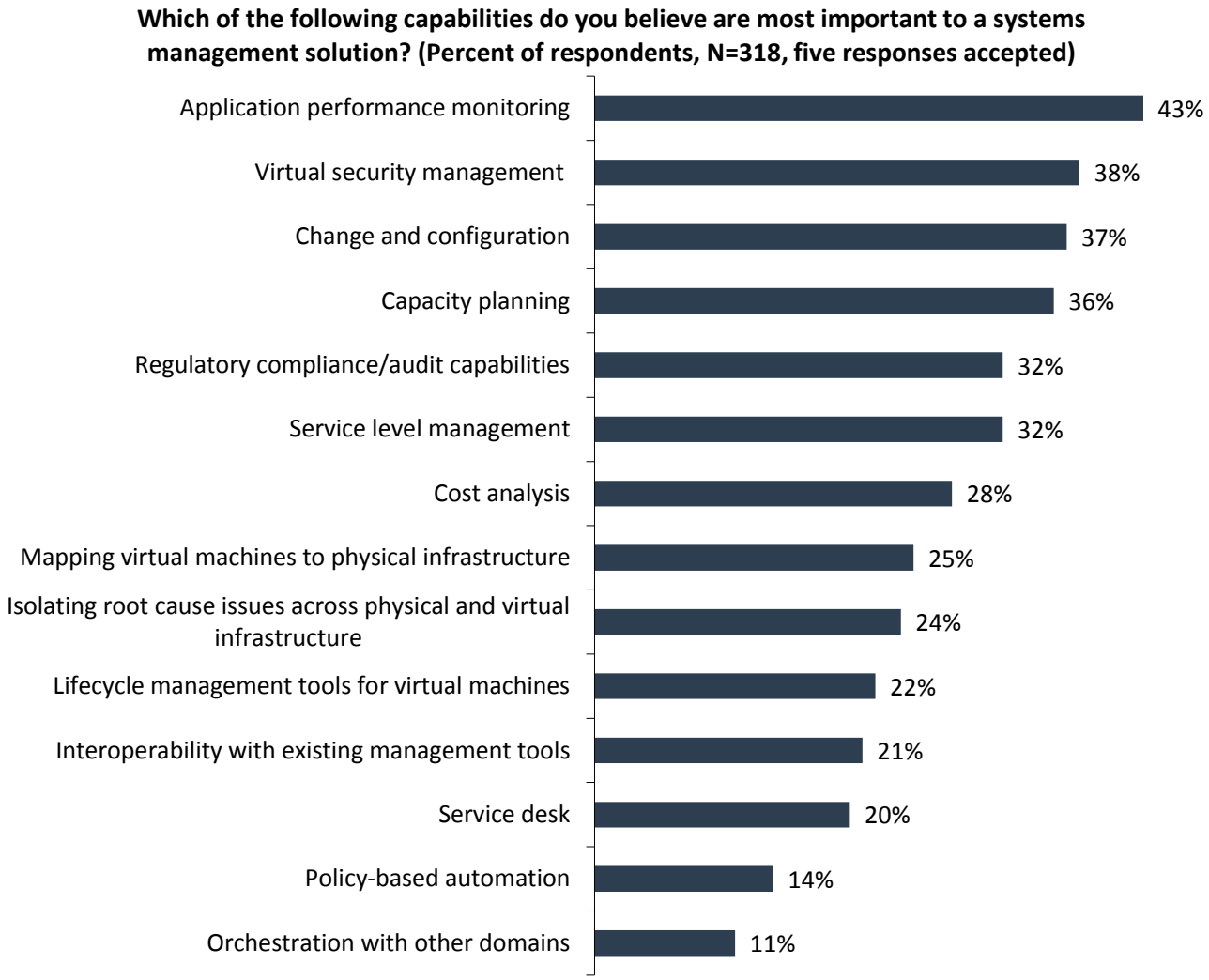
[1] Source: ESG Brief, *Applications Help to Define Hybrid Cloud*, June 2017.

critical as IT also shifts away from supporting servers and virtual machines (VMs) to supporting cloud-native applications, containers, and microservices.

What Does IT Need from Systems Management?

When IT organizations adopt an application-centric model, the features and capabilities of their systems management solutions must also evolve. When an IT team is application-centric, systems management is focused on proactive functions, including application performance management, capacity planning, and root cause analysis across environments. ESG research asked survey respondents which capabilities they believe are most important for a systems management solution (see Figure 2).[2] The respondents could choose up to five responses that were important to them.

Figure 2. Most Important Capabilities of a Systems Management Solution



Source: Enterprise Strategy Group, 2017

Application performance was the important systems management solution capability most cited by respondents. This capability is often achieved with network and end-user experience monitoring, to get application-centric end-to-end

[2] Source: ESG Brief, *Cloud Increases Systems Management Complexity and Capability*, July 2017.

performance monitoring. Capacity planning, a key function for proactive IT optimization, was chosen by 36% of the respondents.

Other capabilities cited, such as mapping virtual machines to physical infrastructure, lifecycle management tools for virtual machines, and interoperability with existing management tools, are critical for the migration of workloads from on-premises environments into the public cloud. Enterprises that attempt to migrate workloads across the hybrid cloud without a full understanding of the application dependencies will run into expected migration challenges, including VM, network, and data-related problems. In an application-centric hybrid cloud, migrations must center around the application view, not the virtual machine view.

This shift to a more proactive, application-centric systems management solution supports IT's transition to leverage new technologies. Yet the continued management and integration with existing systems, especially in virtual environments and VMs, is critically important for systems management. The application-centric hybrid cloud enables IT to deliver better application capabilities to end-users, while leveraging the best of both their on-premises and off-premises resources.

Uila and Application-centric IT

Uila is designed to provide an application-centric infrastructure monitoring and analytics solution for private and hybrid clouds, including virtualized or containerized applications. The key functions of Uila are:

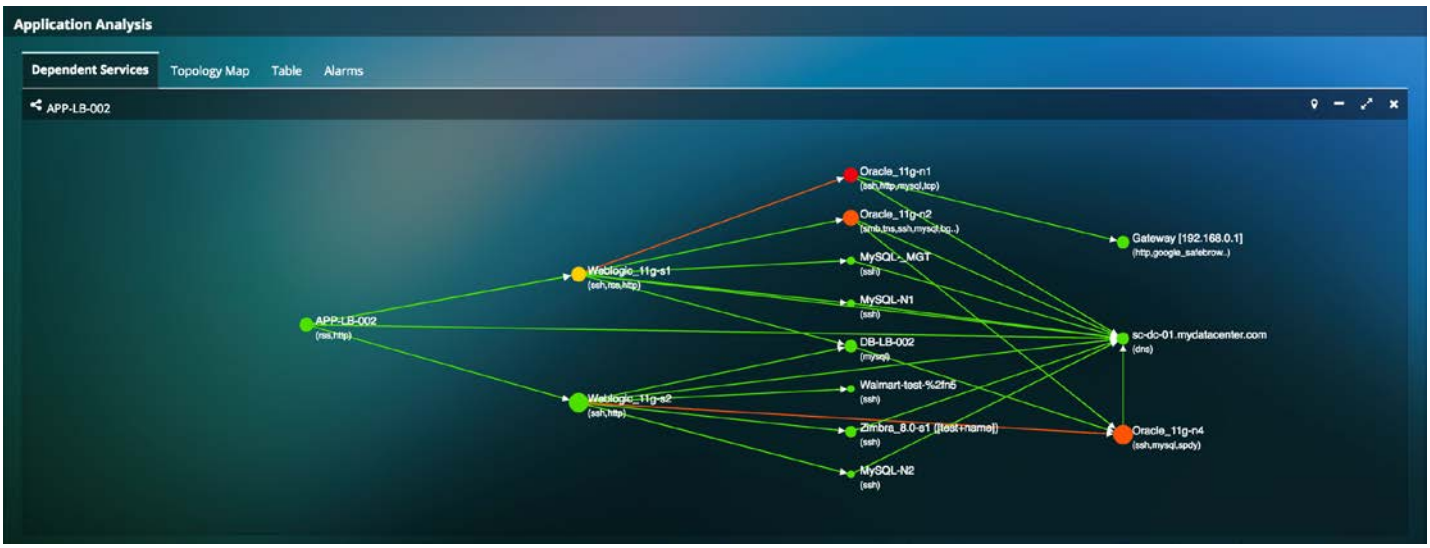
- **Application visibility and its dependency mapping** leveraging deep packet inspection (DPI).
- **Application full stack visibility with correlation to** infrastructure intelligence.
- **One-click, granular root cause identification** to reduce application downtime.
- **Preemptive service remediation** for application performance assurance.
- **Capacity planning insight** to get more out of existing infrastructure and cut unnecessary spending.
- **Agentless mapping** of data center application topology and dependencies.
- **Virtualized and cloud application whitelist and notification on topology configuration changes.**

Uila is a full stack monitoring and analytics platform, designed around an application-centric view. Uila uses deep packet inspection of the network, scanning the network traffic with source and destination identification. Uila uses a built-in database of over 2,700 known protocols and applications to help build the topology view. Deep packet inspection is then combined with Uila's agentless Virtual Smart Traffic Tap (vST) in the private cloud. vST integrates with a virtual switch on the hypervisor to get VM-based insights or a Docker Bridge to get container-based insights, or is implemented as an agent in the public cloud. vST enables end-user experience monitoring, showing the application's performance from the end-user's point of view. This combination of network and end-user experience monitoring means Uila offers the unique capability to manage applications from both the end-user and the data center infrastructure viewpoint. Problems and root causes can now be identified from both ends of the application flow, allowing the IT administrator to proactively monitor application issues.

All this application and network monitoring information is aggregated into a Virtual Information Controller (vIC), which collects private cloud virtualized compute and storage performance information as well as its public cloud counterpart information. vIC further collects application server OS and process-level information using SNMP, SSH and WMI API integration, and service availability monitoring into a single topology map of the entire application stack. Critical

dependencies are determined and visualized, across servers, networking, storage, databases, and applications. Uila then builds a graphical user flow, showing how the infrastructure is being used by each application managed.

Figure 3. Uila Shows Applications and Dependencies Before Migration to Hybrid Cloud



Source: Uila

The key to the Uila solution is the ability to manage, remediate, and optimize across the full stack from the application view point. Traditional infrastructure-centric management tools focus on infrastructure optimization, which may improve application performance. Uila's application-centric monitoring solution focuses on the application performance and helps determine the best action, from remediation to optimization, to deliver the best end-user experience.

The Bigger Truth

Businesses today need to shift to an application-centric IT to meet the needs of both digital transformation and the expectations of end-users. An application-centric hybrid cloud needs an application-centric systems management solution to get the most out of the entire application stack. Uila has developed an application-centric monitoring and analytics solution that gives an integrated, end-to-end view, from end-user performance to infrastructure operations.

As more enterprises make the shift to application-centric IT, Uila is well positioned to provide the right systems management for today and tomorrow.