ESG Brief

Impact of Cloud Computing on the Network

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Abstract: Cloud computing has made a significant impact on IT. How and where organizations consume, build, and run critical business applications have changed dramatically. As more organizations turn to cloud computing, ESG sought to understand what kind of an impact this transition has had on the network, with specific regard to short-term spending and long-term strategy decisions.

Cloud's Impact on the Network

Cloud computing has become a transformative force in the IT world. Indeed, ESG's _2017 Public Cloud Computing Trends_ report revealed that more than three-quarters (78%) of midmarket (100 to 999 employees) and enterprise (1,000 or more) organizations are actively using public cloud services. This clearly indicates widespread adoption across most industries and a rapidly maturing market. But what are the public cloud implications for an organization's network infrastructure, network strategy, and the teams tasked with supporting these resources and achieving these objectives? ESG recently surveyed 300 IT decision makers in North America responsible for evaluating, purchasing, and managing campus and data center networking technologies for their organizations. In addition to topics ranging from challenges and sentiment to emerging network technologies, respondents were asked about how their organization's usage of public cloud services has affected its network strategy.

According to Figure 1, more than one-third (38%) report that their organizations have integrated data center and WAN links to create a seamless network that connects on-premises and off-premises resources. Given that most organizations using public clouds still have on-premises resources, it makes sense that organizations would ensure ubiquitous connectivity and create a seamless experience for employees and customers, regardless of where applications and data reside. It should be noted that based on how individual respondents view their organization's overall purchasing pattern for IT products and services,[1] more than half (51%) of leading-edge consumers identified that integrating data center and WAN links was a way in which public cloud has impacted their network strategy, compared with 37% of average and only 20% of conservative consumers (see Table 1). Why is this important? Because not only do leading-edge shops typically
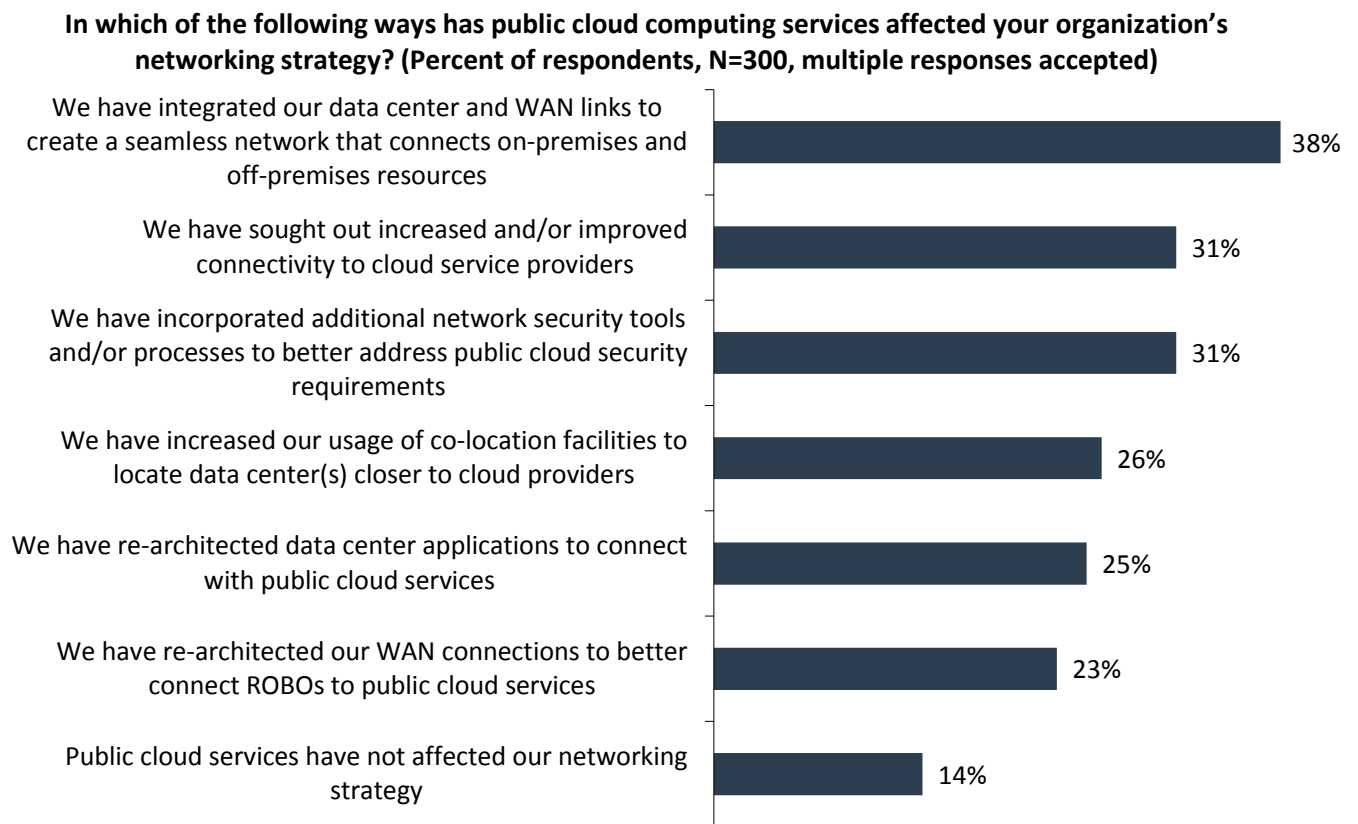
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[1] Survey respondents were asked: _Generally speaking, how would you describe your organization's purchasing patterns for IT products and services?_ Response options were as follows:

- Leading-edge consumers - We stay on top of the most current technology trends and purchase related products as soon as they are available.
- Average consumers - We stay on top of technology trends but generally wait to purchase related products until they have proven acceptance in the market.
- Conservative consumers - We don't really stay on top of technology trends and tend to make investments only after those technologies have been widely accepted in the market.

experience problems earlier, but they also tend to identify where the biggest impact will be. The average and conservative consumers would benefit by learning from the leading-edge consumers.

After that, nearly one-third of organizations identified a need to increase or improve connectivity and/or incorporate additional network security tools and processes. Again, these responses intuitively make sense, as security is typically top of mind given the current threat landscape. Also, as organizations make the transition, it can be difficult to accurately model connectivity, so until you stand up a connection, you will not be 100% certain of how much bandwidth is required to deliver a quality experience.

Figure 1. Impact of Public Cloud on Networking Strategy

In which of the following ways has public cloud computing services affected your organization's networking strategy? (Percent of respondents, N=300, multiple responses accepted)

We have integrated our data center and WAN links to create a seamless network that connects on-premises and off-premises resources	38%
We have sought out increased and/or improved connectivity to cloud service providers	31%
We have incorporated additional network security tools and/or processes to better address public cloud security requirements	31%
We have increased our usage of co-location facilities to locate data center(s) closer to cloud providers	26%
We have re-architected data center applications to connect with public cloud services	25%
We have re-architected our WAN connections to better connect ROBOs to public cloud services	23%
Public cloud services have not affected our networking strategy	14%

Source: Enterprise Strategy Group, 2017

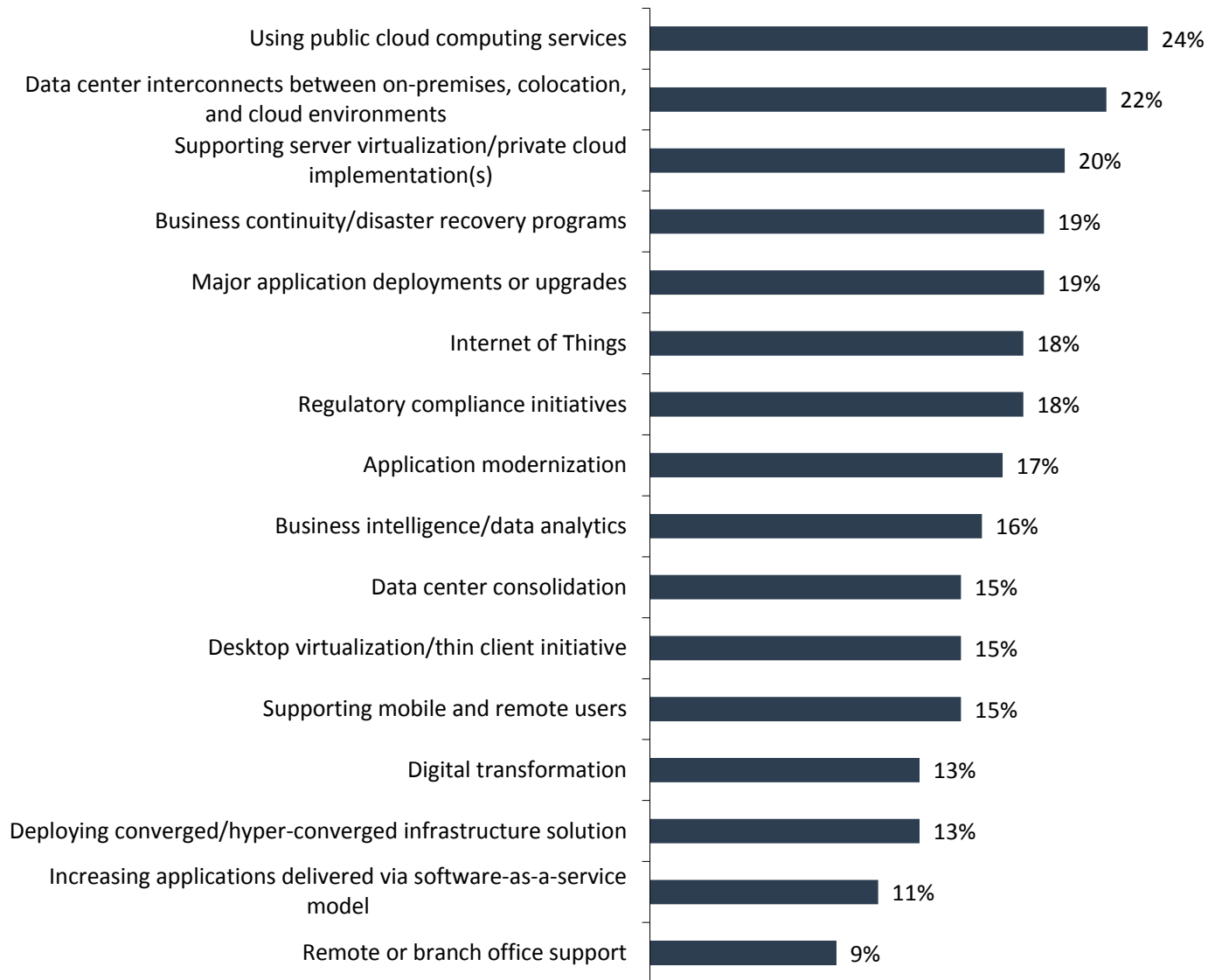**Table 1. Impact of Public Cloud on Networking Strategy, by IT Purchasing Pattern**

In which of the following ways has public cloud computing services affected your organization's networking strategy?			
	Leading-edge consumers (N=81)	Average consumers (N=171)	Conservative consumers (N=44)
We have integrated our data center and WAN links to create a seamless network that connects on-premises and off-premises resources	51%	37%	20%

Source: Enterprise Strategy Group, 2017

In terms of IT initiatives expected to significantly impact data center network infrastructure spending over the next 12-18 months, not surprisingly, nearly one-quarter (24%) of respondents cited the use of public cloud computing services (see Figure 2). This makes sense given the trends revealed in the data from Figure 1, specifically activities involving integrating networks, purchasing additional bandwidth, and shoring up network security. Linking on- and off-premises resources also manifests itself among the 22% who expect to invest in data center interconnects between cloud environments, which has significant public cloud implications.

Figure 2. IT Initiatives Impacting Data Center Network Infrastructure Spending

Which of the following IT initiatives do you believe will significantly impact your organization's data center network infrastructure spending over the next 12-18 months? (Percent of respondents, N=300, three responses accepted)

Initiative	Percent
Using public cloud computing services	24%
Data center interconnects between on-premises, colocation, and cloud environments	22%
Supporting server virtualization/private cloud implementation(s)	20%
Business continuity/disaster recovery programs	19%
Major application deployments or upgrades	19%
Internet of Things	18%
Regulatory compliance initiatives	18%
Application modernization	17%
Business intelligence/data analytics	16%
Data center consolidation	15%
Desktop virtualization/thin client initiative	15%
Supporting mobile and remote users	15%
Digital transformation	13%
Deploying converged/hyper-converged infrastructure solution	13%
Increasing applications delivered via software-as-a-service model	11%
Remote or branch office support	9%

Source: Enterprise Strategy Group, 2017

The Bigger Truth

As public cloud computing becomes widely accepted and adopted across midmarket and enterprise organizations, it is imperative for network teams to understand how cloud computing will impact the network and the network team. If possible, learn from those on the leading edge, who have already gone through the trials and tribulations of deploying a public cloud, and understand its impact on the network strategy and spending.

The key recommendations include ensuring that your organization has seamless connectivity from the on-premises and off-premises resources, ensuring adequate connectivity to deliver a positive user experience, and of course, securing the cloud connectivity. These strategies should drive your network spending. Keep in mind, this may require not only new technology, but also new skill sets.

The network is in a great position to be an enabler for digital transformation efforts and initiatives. Therefore, network teams need to understand the impact cloud computing will have/is having on the network and embrace the shift in strategy and spending. Those who can learn from the leading-edge, early adopters will ensure a successful transition to supporting cloud computing and make the organization more agile and efficient.

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