Deloitte.

Software-defined everything

Tech Trends 2015: The fusion of business and IT
A public sector perspective
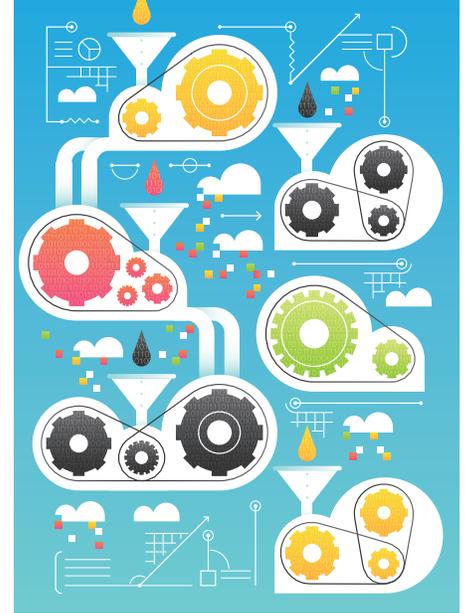
As the Everything-as-a-Service trend pushes beyond software and into infrastructure and operations, the virtualization of the entire IT stack – compute, network, storage, and security layers – becomes a possibility. Not only could this help lower costs, but it also could help improve speed; reduce the complexity of deploying and maintaining technology footprints; boost mission effectiveness in data sharing; and enhance cyber-incident response.

Public sector perspective

Relevance	Timing	Readiness to adopt

The graphic above represents the trend's potential relevance, timing (short, medium, or longer runway), and overall readiness (low, moderate, or high) of the public sector to adopt this trend. These broad ratings are based on the professional opinions of some of the authors and may not reflect your organizations unique situation.

Software-defined everything? Yes. Everything. Of course, achieving that vision tends to be easier said than done – and progress in the public sector has been mixed. At the forefront, public sector adoption of software-defined compute has been underway for years. Driven by efforts such as the 2010 Federal Data Center Consolidation Initiative,[1] various agencies have invested heavily in virtualization and are adopting cloud computing. Several have realized significant benefits. For example, according to a September 2014 GAO report, the Department of State achieved an estimated $9 million savings related to virtualizing IT resources, and reducing hardware, power and data center cooling costs.[2]

Adoption has generally been slower for other data center components such as storage and networking, although there are some early adopters leading the way. For example, the Department of Defense is implementing an enterprise-wide view of its information networks through software-based controllers.[3] At the top of the pyramid, the complete software-defined data center – one which includes the full set of data center capabilities – is still a ways off.

Several barriers might be preventing public sector entities from adopting software-defined everything as quickly as the private sector. From a technical perspective, public sector entities tend to struggle in deciding what to do with old, legacy systems which cannot take advantage of new automation-based technologies; and in some cases, they lack the ability to establish a clear enterprise architecture that set standards and can integrate systems together. From a non-technical perspective, greater automation and standardization, typically requires tighter integration and governance between disparate organizations, which can be difficult in the public sector.

Software-defined everything appears to have the greatest impact in large-scale environments. The Googles and Facebooks of the world, which rely on tens of thousands of servers, have a lot to gain from comprehensive virtualization and automation – where even slight increases in efficiency can have a significant impact on the bottom line. The same is often true in government. However, to pull off a major shift toward software-defined everything, most public sector technology leaders would need to achieve a higher level of alignment with its requirements, including (1) trained and experienced talent accustomed to working in a software-defined environment, and (2) new levels of coordination across organizations to centrally manage larger pools of resources, and administer and secure shared networks. Government shared service center modernization might be the nexus for early adoption; however, making true progress through this path will likely involve significant coordination and collaboration with the private sector and vendor communities.

At some point, tightening budgets could be the catalyst for adoption. But for now, the most effective approach might be to test the software-defined concept's merits, experiment where possible, and start laying the groundwork for a larger-scale transition in the future.
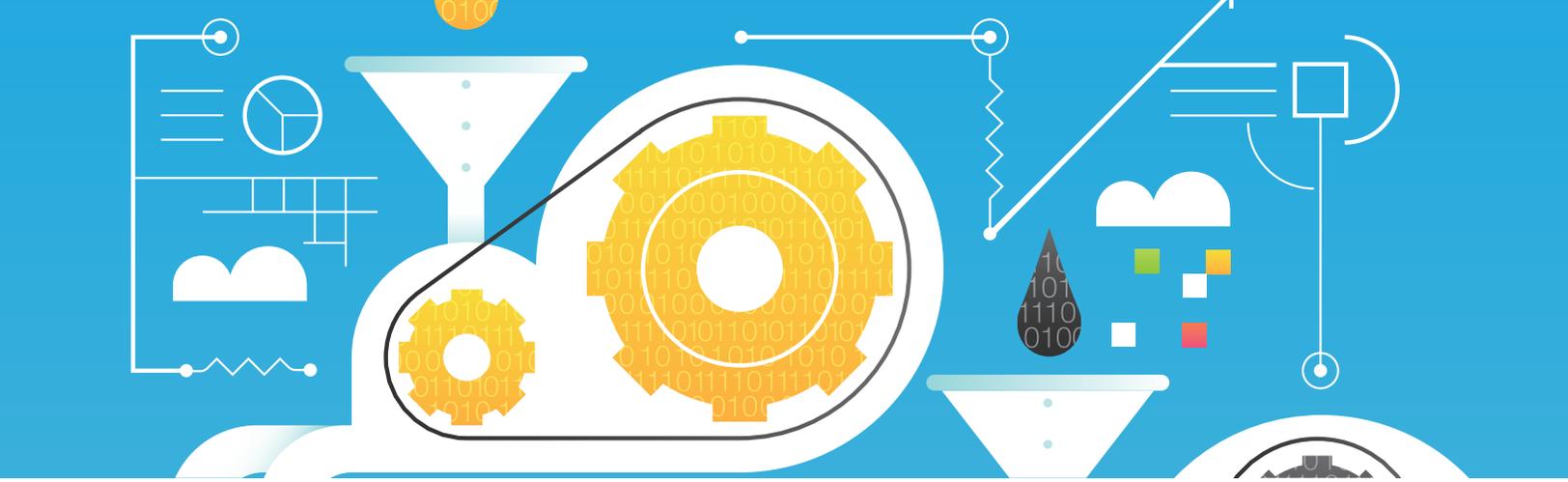
Moving forward

- **Establish a baseline.** Success tends to be the best motivator for continued improvement. But if you don't know where you started, you probably won't know how far you've come – or whether it was worth the effort. Establishing solid metrics (such as virtualization adoption percentage and time required to provision specific elements of the IT stack) can help you measure progress and tell a more compelling story.

- **Focus on key aspects within the broader picture.** Early progress can provide a launchpad for your overall strategy and helps drive change within the organization. Identify focused metrics from your cloud providers or through focused reporting capabilities featured in some of the newer technologies you have purchased. Ask, 'Is my team making a concentrated effort to identify tangible benefits and celebrate small wins?' Some commonly overlooked benefits include reduced human error and increased standardization, both of which can lead to early cost savings and efficiency.

- **Take a phased approach.** Trying to implement software-defined concepts in one big step across all infrastructure components can be daunting and will likely involve more capital investment than most organizations can afford. A more effective approach may be to evaluate automation capabilities as part of the standard IT refresh cycle or through cloud services adoption. Use the baseline metrics noted above to benchmark software-defined deployments against existing practices, and then focus scarce refresh funds on improvement areas with the greatest potential impact. Use the same baseline metrics to validate improvement, then repeat. Over time, adoption of software-defined layers should evolve.

- **Collaborate for success.** Learn from the achievements and mistakes of others – especially when it comes to managing change and driving adoption. If you are facing a problem, there's a good chance someone else has already found a way to address it. No need to reinvent the wheel.

For more information, please contact:

Roy Mathew
Principal
Deloitte Consulting LLP
rmathew@deloitte.com

Kristin Russell
Director
Deloitte Consulting LLP
krrussell@deloitte.com

David Savino
Director
Deloitte Consulting LLP
dasavino@deloitte.com

Paul Krein
Specialist Leader
Deloitte Consulting LLP
pkrein@deloitte.com

Endnotes

[1] Ted Girard, "Virtualization's value in data center consolidation", *Federal Times*, March 3, 2015, http://www.federaltimes.com/story/government/solutions-ideas/2015/02/24/virtualization-data-center-consolidation/23945955/, accessed April 14, 2015.

[2] U.S. Government Accountability Office, *DATA CENTER CONSOLIDATION: Reporting Can Be Improved to Reflect Substantial Planned Savings,* September 25, 2014, p. 19, http://www.gao.gov/assets/670/666123.pdf, accessed April 14, 2015.

[3] Sean Lyngaas, "Software-defined networking key to Lockheed's DISA deal", FCW, February 27, 2015, http://fcw.com/articles/2015/02/27/lockheed-disa-contract.aspx, accessed April 14, 2015.

Learn more

Follow @DeloitteGov

www.deloitte.com/us/pstechtrends