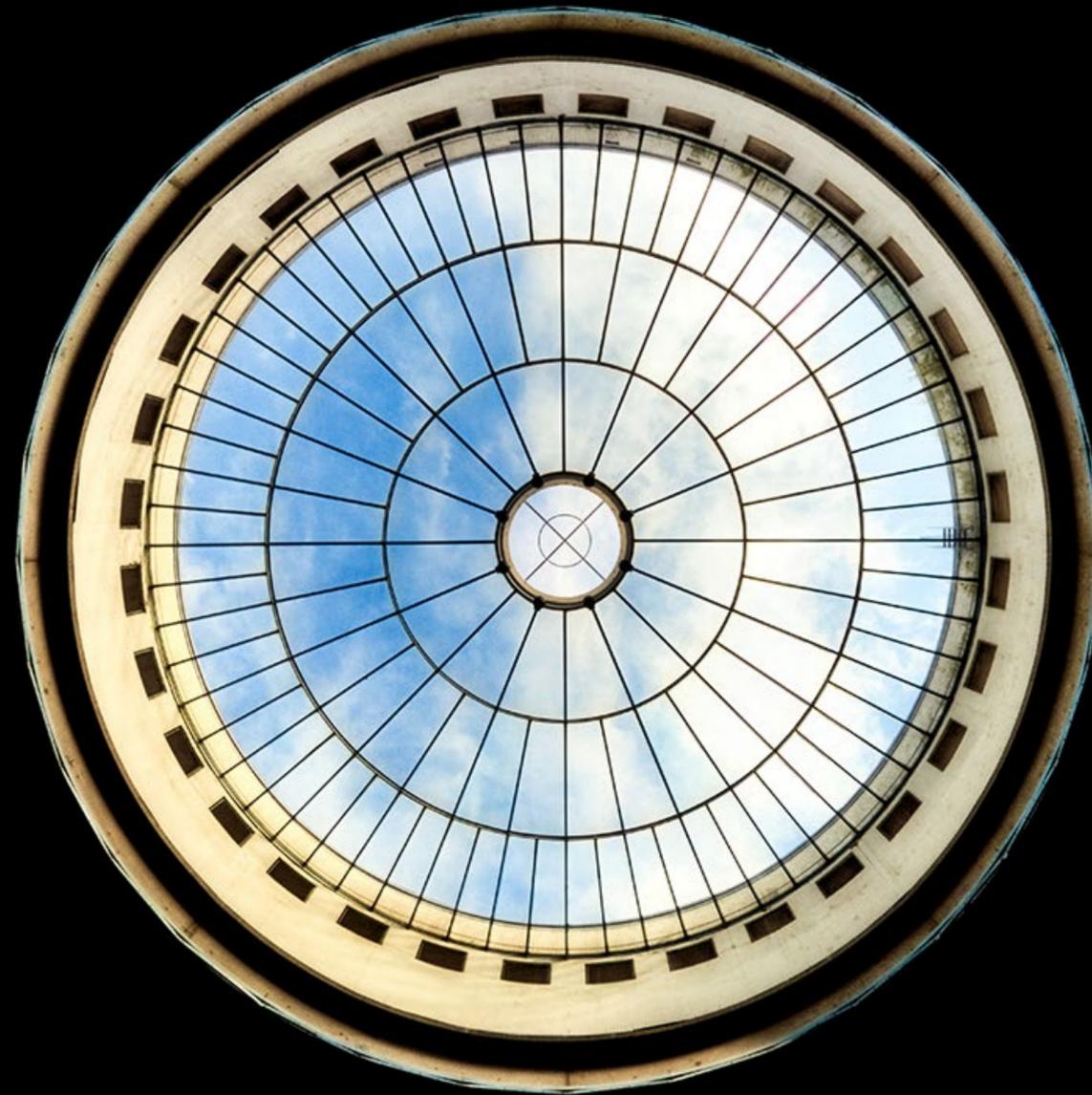


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Cloud and infrastructure

Something old & something new—
operating in the new paradigm

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About the series

Overview

In order to enable new business and preserve existing value, global Information Technology (IT) executives should address the growing dichotomy between the agility companies want, and the stability they need. This dichotomy is becoming exacerbated as legacy data centers become farther and farther removed from the cloud and from mobile end users. Meanwhile, delivering data to devices and taking advantage of platforms often means giving up some control over operating systems, hardware, and data centers. It's 9 a.m. on Monday. Do you know where your data is?

Introduction

As IT executives look to provide value from their IT portfolios, they are balancing a mix of emerging, current, and legacy technologies. With the world of technology ever evolving at pace, the gulf between emerging and legacy continues to widen. The consumer market drives advances in end user devices and end user expectations. Many service vendors invest in cloud, virtualization, and orchestration, while manufacturers attempt to deliver more compute horsepower at lower cost. Behind the tablets, clouds, and chips, there still sits a data center and a room full of legacy infrastructure waiting for refresh.

This widening gap between end user devices, data mobility, cloud services, and back office legacy systems challenges the IT executive to manage and maintain technology in a complex array of delivery capabilities. From mobile apps to mainframe MIPS, and from in-house servers to sourced vendor services, managing this broad range requires a view on how much can change by when, an appropriate operating model, and a balanced

perspective on what should be developed and controlled, and what needs to be monitored and governed.

To help equip the IT executive in forming those views and making those judgements we present points of view on key trends and topics.

Background

Many IT executives are used to working with vendors and sourcing products. They have made build-or-buy decisions on business software. They've sourced development skills, procured middleware, operating systems and database licenses. And they've bought hardware, built data centers, and more. The CIO has needed to be an intelligent buyer of components, and to have an operating model that could leverage and integrate those components into business value.

Historically, these operating models were built on a number of assumptions that have traditionally held true: that all of the employees who design, develop, provision, deploy, and operate actually work for your organization; that you control your own architecture blueprint and perform your own engineering; or that deployment and changes to the IT stack are done according to your schedule and approval.

In this article, we discuss how, because these traditional assumptions are breaking down, IT executives will likely need to cede some controls they are normally used to exercising.

The role of IT often shifts from one in which it would buy and integrate products and components, to one where they buy and govern enabling services. The IT portfolio extends from supporting legacy systems to using

emerging trends and services. Operating models help IT executives exert appropriate levels of management and control over both the legacy being managed in-house, and new platform services being consumed.

Traditional controls

Before everything became connected, the IT executives had high levels of control over their domains. Typically the architecture and engineering teams would lay out the roadmap of what you wanted to consume, and then ensure that the systems and builds were fit for purpose and met particular risk and security requirements. The provisioning and deployment teams would buy IT infrastructure and ensure it was configured according to need. The data center facilities group managed and controlled the IT facilities and ensured that new infrastructure was racked, stacked, and patched according to requirements. The support and operations teams monitored systems, networks, firewalls, databases, and business applications ensuring their safe operation. And above it all, software development worked to understand the business need and to both enhance old and create new business value by delivering application functionality.

Many IT executives are accustomed to leading and controlling all of these areas and to laying out frameworks and making decisions that best use the available capabilities to add business value. Choosing architectures, developing core builds, selecting appropriate languages, databases, compute and storage technologies, data center locations and characteristics, middleware, messaging and more come together in

an integrated technology stack—selected, procured, managed, and maintained by the group.

What's changing

The traditional assumptions of owning, operating, and controlling the technology stack are breaking down as new utility services mature. Getting the right technology stack no longer means that you control the design and roadmap decisions on hardware, operating systems, virtualization technologies, patch and refresh schedules, or in building a resilient data center. Those decisions are ceded to suppliers, and the IT executive role has responsibility for managing a portfolio that includes things built, operated and controlled in house, and things sourced and leveraged that require governance.

As clouds, platforms, and services mature, others will likely have the scale and skill to better provide that IT infrastructure. The aspects you control, and where competitive advantage lies, becomes application software. Given these changes, and the impact they may have on the operating model, what are the things you need to be thinking about to manage effectively in this new paradigm?

The new portfolio—emergent to legacy

With the advent of utilities and services the opportunity for the IT executive is to leverage platforms and emerging end user capabilities to add value. But your legacy and even relatively current in-house technologies

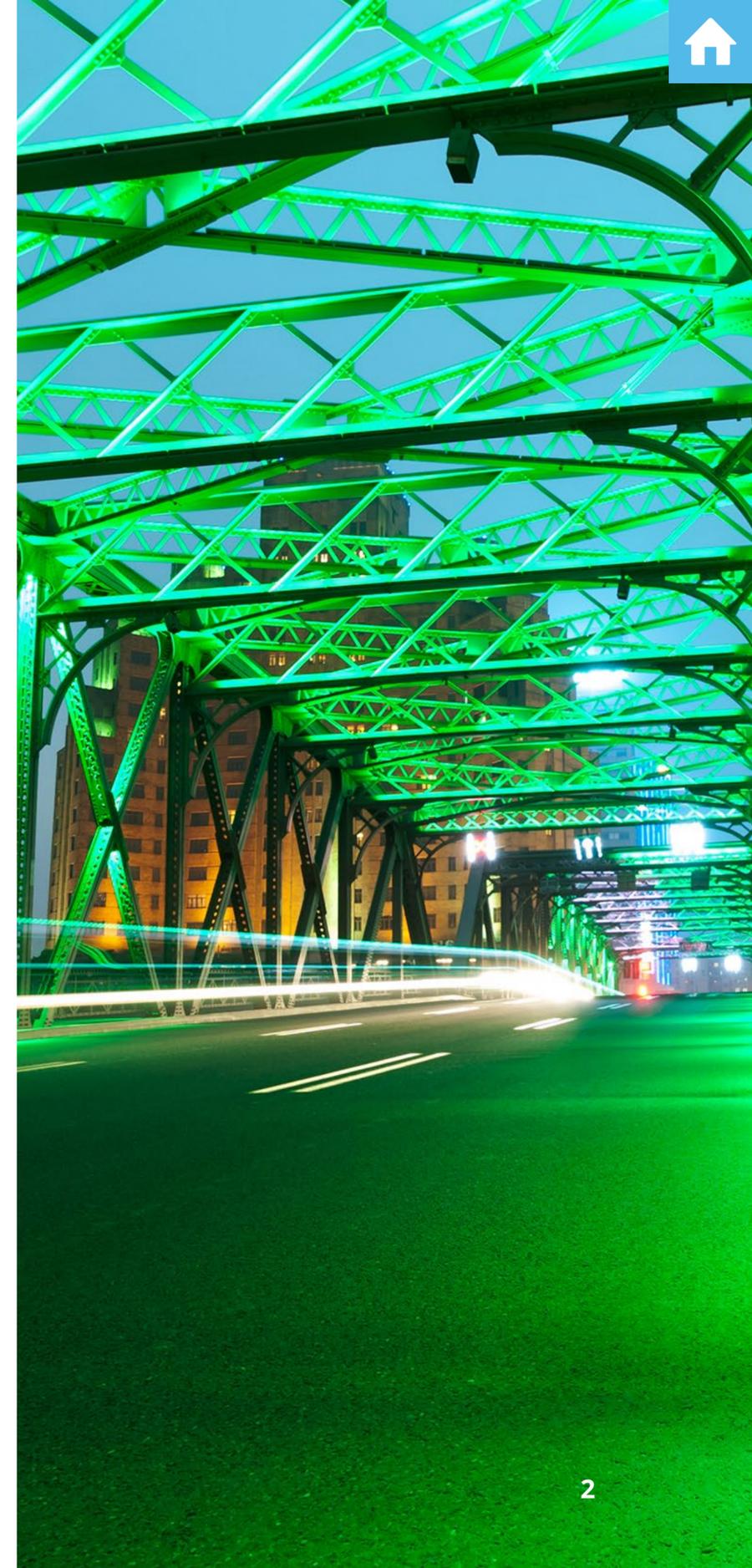
may not be getting onto a cloud or platform anytime soon. So adding new capabilities in new platforms means extending the IT portfolio. Today it may be in-house, controlled, and ranging from legacy to current. Tomorrow it may also include external emergent technologies, operated off site by a third party.

A challenge for the operating model aligned to this paradigm is to be able to flex between managing the customized, bespoke, and other internally retained, controlled and managed technologies at the same time as external platforms and services.

In managing your in-house IT, and (as a starting mindset) to also work with platform vendors, you should consider bringing development and operations closer together.

DevOps

DevOps is about bringing the development and operations teams closer together, such that their collaboration increases the agility and speed, and the accuracy and stability of business enhancing change. Break down the traditional siloes between the change and run parts of IT so that software deployment is not throwing it over the wall to operations, but rather following an integrated process. When development leverages the technical and operational expertise in the “deploy and operate” part of the organization, the potential benefits include improving on robust design choices, more efficient provisioning, first time right configurations, and improved incident and problem handling. Together these can equate to faster time to market, lower operating costs, and better availability.





Given the increasing importance of end user devices and compute capabilities, it could also be worthwhile to consider merging a value chain of analytics, development, deployment, and enterprise operations with end user/desktop and device services. Such a “DevOps+” model could be even more responsive and it further integrates and streamlines the delivery of business value. The more business software becomes independent of hardware, the greater the orientation of your teams to business function and value over physical technical components.

Approaches that can help creating a DevOps mindset across IT include:

- Publish mission statements with agreed upon language to be used by development and operations teams.
- Institute common metrics that drive development and operations to similar business goals.
- Schedule regular joint development and operational team meetings.
- Implement a shared ticketing system to ensure quick turnaround on root-cause analysis and accountability between teams.
- Establish a Wiki or social media page to encourage information sharing and reduce the “information silo” effect.
- Deploy mobile productivity tools and an online project management suite. Create a balanced scorecard that tracks key performance indicators (KPIs) for the team.

While bringing development and operations closer together has benefits, some of the ops may sit with a

Trends in DevOps adoption

71 percent of firms will either be using or planning to implement DevOps by 2016. Time to market, business impact and cost savings in IT were stated as the three major drivers for DevOps adoption and people issues (primarily, resistance to change) were cited as the inhibitors. ¹

vendor. The challenge in the mixed portfolio of retained and sourced services then becomes leveraging a DevOps model that crosses internal and vendor boundaries.

Something old, something new

A key capability in the new operating model is to develop, manage, and support both retained legacy systems and new platform oriented services. In addition to the usual types of teams and services the IT executive can look at new and tangential capabilities to manage and govern the mix of internal, external, aged, and emergent.

To supplement approaches such as DevOps, we introduce a number of other considerations to better manage the modern mixed portfolio of internal and external services.

Draw a map and use a GPS

Have an architecture and roadmap that you control for the future of your legacy and other in-house operated technology. And, keep an architectural eye on platform and service development externally, how best to leverage the platform possibilities, what the entry criteria may

be, and how to position the in-house architecture in a manner that can align with external trends and services.

Retain your service as well as your governance

Central to the prospect of managing both in-house and governing sourced services is the right balance of operations and governance. Continuing to manage an internally run stack requires the technical and operational skills and operating model to code, build, test, deploy, and operate. In leveraging clouds and platforms, some of the “deploy and operate” is no longer required, but governance of design choices, services and costs are.

Organizations that have outsourced in some material way will be used to the idea of a “retained org” whose focus is on vendor governance and performance. In the mixed portfolio, you need to retain operational capability over those things that aren’t going to a cloud. Make sure there is a retained services organization with the right skills and critical mass to sustain the in house operation.

At the same time it’s also possible that a service to a business line consists of a combination of internally and externally run applications and data flows. In these cases the service availability to the business is a function of both retained services and retained governance teams. Having these responsibilities in close engagement becomes an imperative.

Make the implicit explicit

In our day to day operation, relationships and personal knowledge can, despite best efforts, trump process and procedure. Sometimes things get done with phone calls or favors on the side, or people take things into their own hands to resolve. So long as the estate is completely managed in-house, this behavior does not necessarily



create existential issues. However, when consuming an external service, the linkage between development and operations is typically broken. Things that may have worked in the past due to relationships and personal calls will likely fail when faced with contractual responsibilities and call centers. Spend time to make sure the implicit way of working is explicitly reflected in knowledge use cases, processes, and procedures.

Look inside the black box

Understand and govern both the sourced service and the internal technology stack. But don't replicate the services of the service provider. IT Executives and their teams need to spend time to understand the state of technology in the marketplace and how best they can use it. Consuming more services at elevated levels in the technology stack does not absolve the responsibility to understand what makes up the black box. The components of the service and technology being procured drive its cost and effectiveness. Having an open book relationship with service providers helps you to see, understand, respond, and influence even if technology control is out of scope. At the same time having overlap with the responsibilities of the platform provider drives up cost and blurs accountabilities.

Continual transformation

Be able to support ongoing and complex transition and transformation exercises. The new status quo is that over time organizations will be transitioning application and service workloads to vendor platforms, between vendor platforms, and back in-house when and if appropriate. Transformation may be required to enable that kind of fungibility between services. And legacy and other non-current systems will be chipped away at over time to keep up, and to enable them as well to take

advantage of external services. Continual transition and transformation activities will be as much as part of your ITSM approach as continual service improvement.

Options vs. choices

Just because there are options for placing a workload either internally or externally, it does not necessarily mean that all your requestors should be free to make their own choice. Have a centralized design and placement authority that vettes optimal system design and then selects the appropriate landing platform. This body for example can review service levels against needs, technologies against runtime requirements, security and data needs against the controls provided, and consumption and resource unit volumes against prices. It can then ensure that the deployment is placed internally or externally where it meets an optimum combination of service, cost, and risk.

The self-funding optimization annuity

Have someone focused on consuming and paying less (the service provider wants you to consume and pay more). Incent a team to be hunting down targets for reducing consumption—in-house or out. Targets could be opportunities to virtualize, refresh, amend service levels, or otherwise optimize something that could release servers, storage, or vendor resource units. Hard dollar saves from vendor invoices or space and power gains in the data center can help “bootstrap” a self-funding optimization annuity.

Floors and ceilings

Managing placement choices and focusing on optimization should be accompanied by longer term financial modeling of service consumption. Understand the impact when resource unit consumption levels reach certain thresholds.

Model strategies that can trigger beneficial thresholds. Look at scenarios that move workloads between services, service levels, or even other vendors. And have a view on repatriation and possible costs and benefits.

Who manages the vendor?

The IT executive may be used to a model in which vendor management, sourcing, and procurement sit outside the IT organization. The larger and more important any sourced IT services are to the enterprise, the greater the case for having specific IT teams and experts focused on the vendor. Confirm that contract managers, legal counsel, financial analysts, buyers and negotiators have appropriate levels of focus and expertise on the sourced IT services. There may be a case for having a dedicated cross-functional team inside the production organization. Or at least clear service levels, responsibilities, and dotted reporting lines of relevant vendor and sourcing managers into IT.

Where's my data

When data flows and resides inside the firm's own network and data center estate you always know roughly where it is. Even if it flows internationally you are dealing with known destinations and colleagues. However, managing a tech space by leveraging vendor cloud services can complicate your ability to know where your data is and involves regulations of where things are. Understanding, controlling, documenting, and evidencing the flow of data and residency between systems, vendors, entities, and countries becomes an integral requirement of IT. Have teams ensure that the CMDB contains data flow information, and ensure the team works with colleagues from legal, data protection, and other stakeholders, and with your vendors, to ensure you meet data flow and residency compliance requirements.





Data protection laws are getting more complicated

“The Court of Justice declares that the Commission’s US Safe Harbor Decision is invalid.”

Each of the EU-based Data Protection Authorities, based out of 28 different countries, now have the authority to decide the legality of a firm’s data transfer arrangement between the US and the EU. There are frequent developments to counter the differences in how the US and EU approach data privacy.

The umbrella agreement for data protection which was finalized recently, enforces high level of personal data protection during its transfer from the EU to the US. All these changes are adding further complications and are increasing uncertainties in the marketplace globally. ²

Conclusion

The more prevalent cloud and vendor services become, the greater the stretch of the operating domain. IT executives are often faced with the challenge of operating legacy retained IT at the same time as they are expected to take advantage of external platforms and services.

In this article we have examined why the traditional control of the IT Executive should change, how to use DevOps as an operational mindset to add value, and presented a number of considerations that can help the operating model bridge the gap between legacy in house and emerging external services.

To end the series we address the elephant in the room. After discussing trends and responses to end-user advances, platform as a service, compute trends, and operating model considerations, what do we do with the legacy environment?

In the final article we will confront the “legacy of legacy,” the ultimate drag on condensing into a cloud.

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Endnotes

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² Casper, C. (2015). *Has Safe Harbor's Ship Sailed?* Gartner.

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