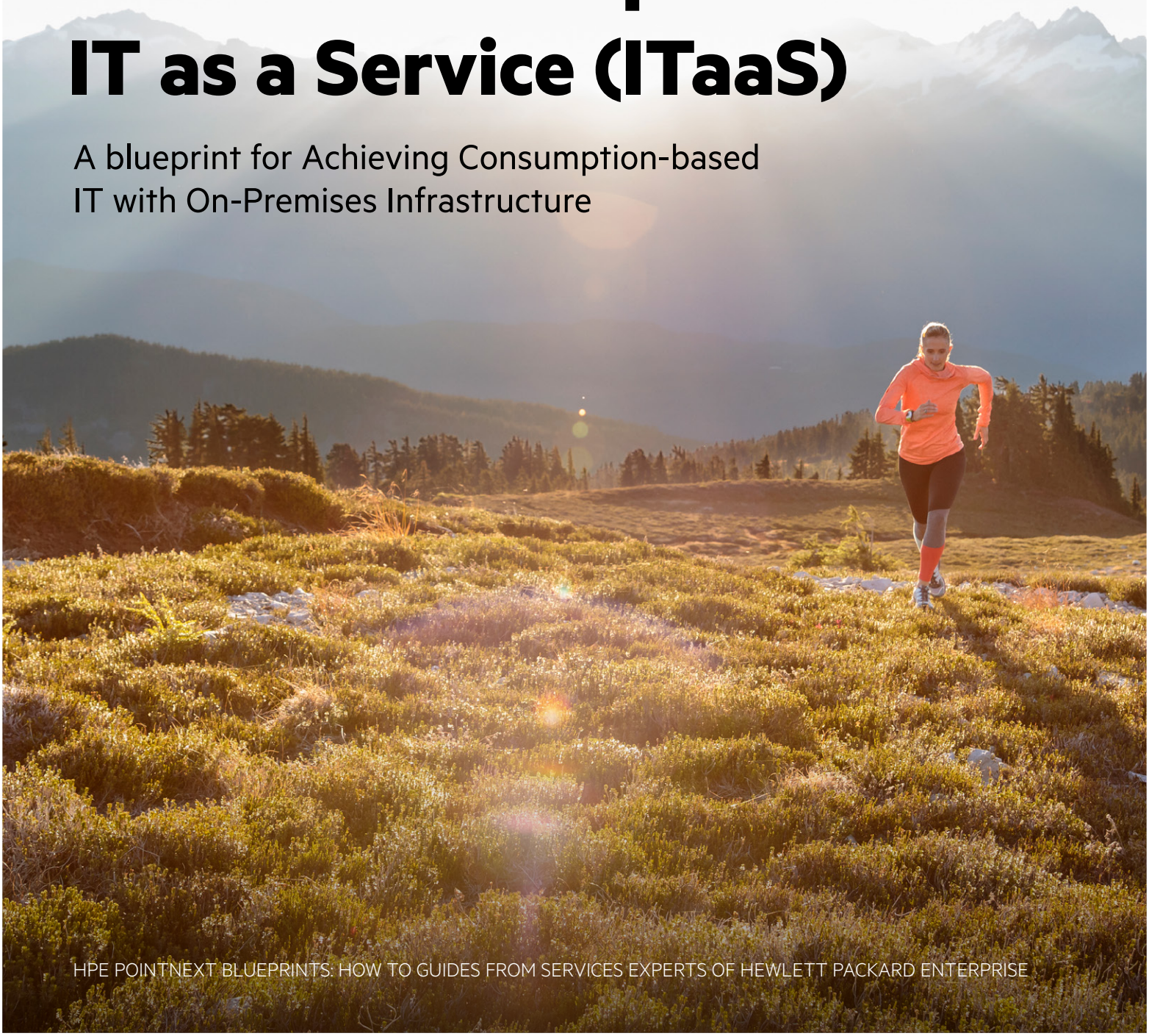
HPE
POINTNEXT

Consume and Operate IT as a Service (ITaaS)

A blueprint for Achieving Consumption-based IT with On-Premises Infrastructure



HPE POINTNEXT BLUEPRINTS: HOW TO GUIDES FROM SERVICES EXPERTS OF HEWLETT PACKARD ENTERPRISE

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Executive summary

Hybrid IT is the operational model sought and used by most large businesses. For the on-premises portion, the difficulty is ensuring it can be deployed with the ease and financial model of the public cloud, yet retain traditional governance and control.

There are three basic approaches to consuming IT resources:

1. On-Premises Compute: capital expense consumption model
2. Public Cloud: subscription or pay-per-use consumption model
3. Public Cloud-like On-Premises: pay per use, elastic IT consumption. Commonly referred to as IT as a Service (ITaaS)

This guide will focus on achieving item No. 3, with some reference to 1 and 2, which are already well established. The benefits to the business of ITaaS include the ability to quickly deploy projects, deliver higher value products, increase operational efficiencies, improve financial transparency and more directly associate cost to consumption.

ITaaS has fundamental advantages over public cloud

TRADITIONAL IT DATA CENTER CONCERNS	ON-PREMISES IT-AS-A-SERVICE (ITAAS)	PUBLIC CLOUD
Cost Optimized, predictable, manageable	●	◔
Control Compliance, security, risk, governance	●	◗
Performance Business critical workloads	●	●
Agility Rapidly meeting business needs	●	●

However, ITaaS is challenging since line of business managers want IT to operate like a public cloud vendor, while typical IT delivery models favor traditional project deployments. Consuming IT in premises means many of the things that customers expect from the public cloud - pay per use, elastic IT, simplified IT operations, with the added control that comes from operating from their data center or on the edge.

For this reason, many organizations are leveraging forward-looking best practices from the experts at HPE Pointnext to help them transition to an ITaaS structure. This guide examines the critical business and technology practices enabling ITaaS, from using IT partner resources, ITIL features, operations service practices, to funding infrastructure as a service.

HPE Pointnext has delivered ITaaS projects around the globe. The resulting HPE Pointnext blueprint of best practices shows the steps, challenges and expected results to achieving an ITaaS environment and services offering.

IT as a Service Means a Major Transition

Converting a traditional IT organization to ITaaS takes careful planning. Each step must address business goals: to run workloads on the best-fit platform, protect the company's IP, provide security and governance, control costs, and improve the relationship with the business. Achieving this positions IT more as a valued resource. ITaaS can resolve performance and utilization issues, simplify repetitive tasks and processes, and align IT with the business.

Steps to set up and offer ITaaS:

- Determine the right mix to remain in control of performance, cost, compliance, IT governance
- Provide capacity on premises while offering scalability on demand and managing capacity, cost and risk
- Align IT expense with cash flow and revenue streams by moving to a consumption-based cost model that reflects business usage
- Assess how IT operates and uses internal staff to ensure they have the highest impact on the business

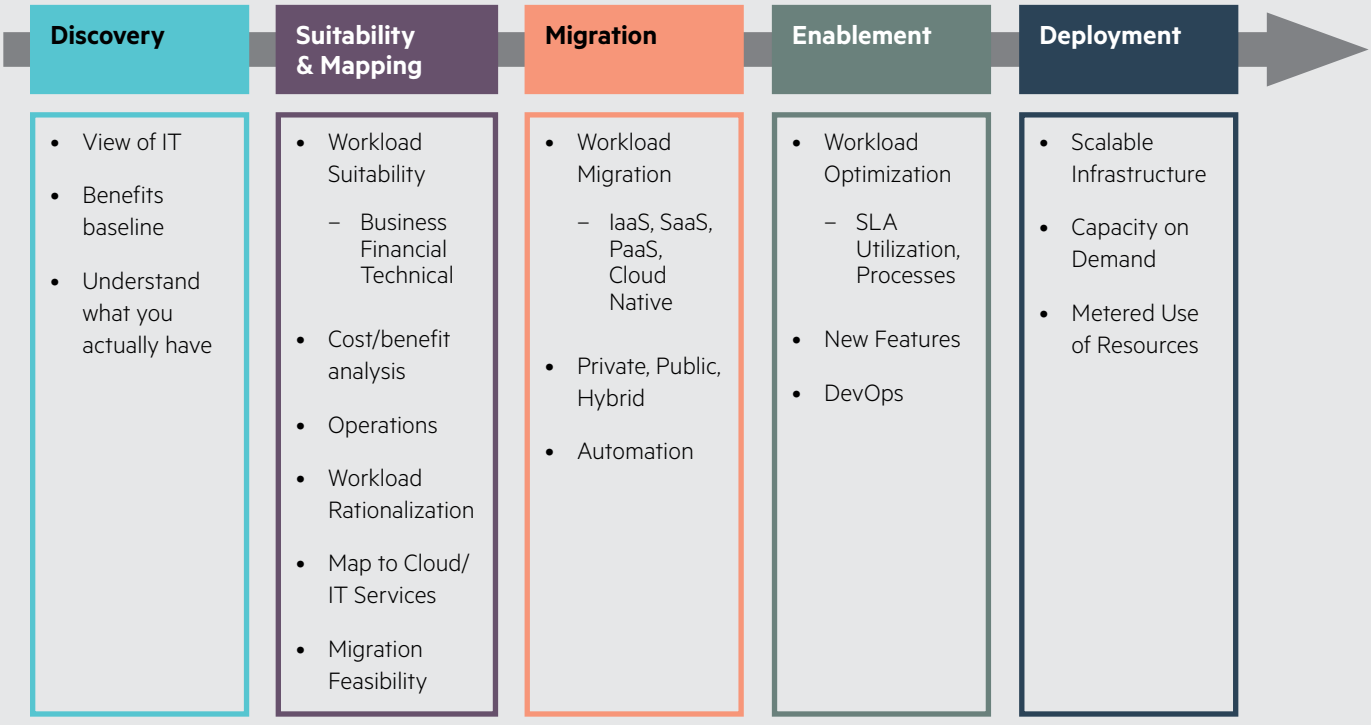
Detailed workload profiling is required to make sound, cost-effective platform decisions. The reward is a controlled environment, scalability, managed capacity, agility, spending, and cost control, with IT providing more resources towards innovation and meeting business needs.

The right mix, an approach for allocating workloads to platforms based on cost, risk, and performance, supports the idea that hybrid IT embraces a broad set of platforms, while ensuring consistent governance across them.

ITaaS Transition Overview

Adopting an on premises consumption business model begins with discovery and mapping, followed by portfolio planning, on- and off-premises platform migration mapping and then ensuring that the right capacity is in place to meet ondemand application requests. Determining the right mix of Hybrid IT in ITaaS is crucial to matching the applications and workloads to the right platforms. It also enables transition to a catalog-style services offering typical of ITaaS solutions. The following diagram illustrates the overall ITaaS adoption process.

With this approach, IT organizations create a metered infrastructure for themselves as they deliver metered high-value services to their business customers. The sections that follow will address these areas in detail.



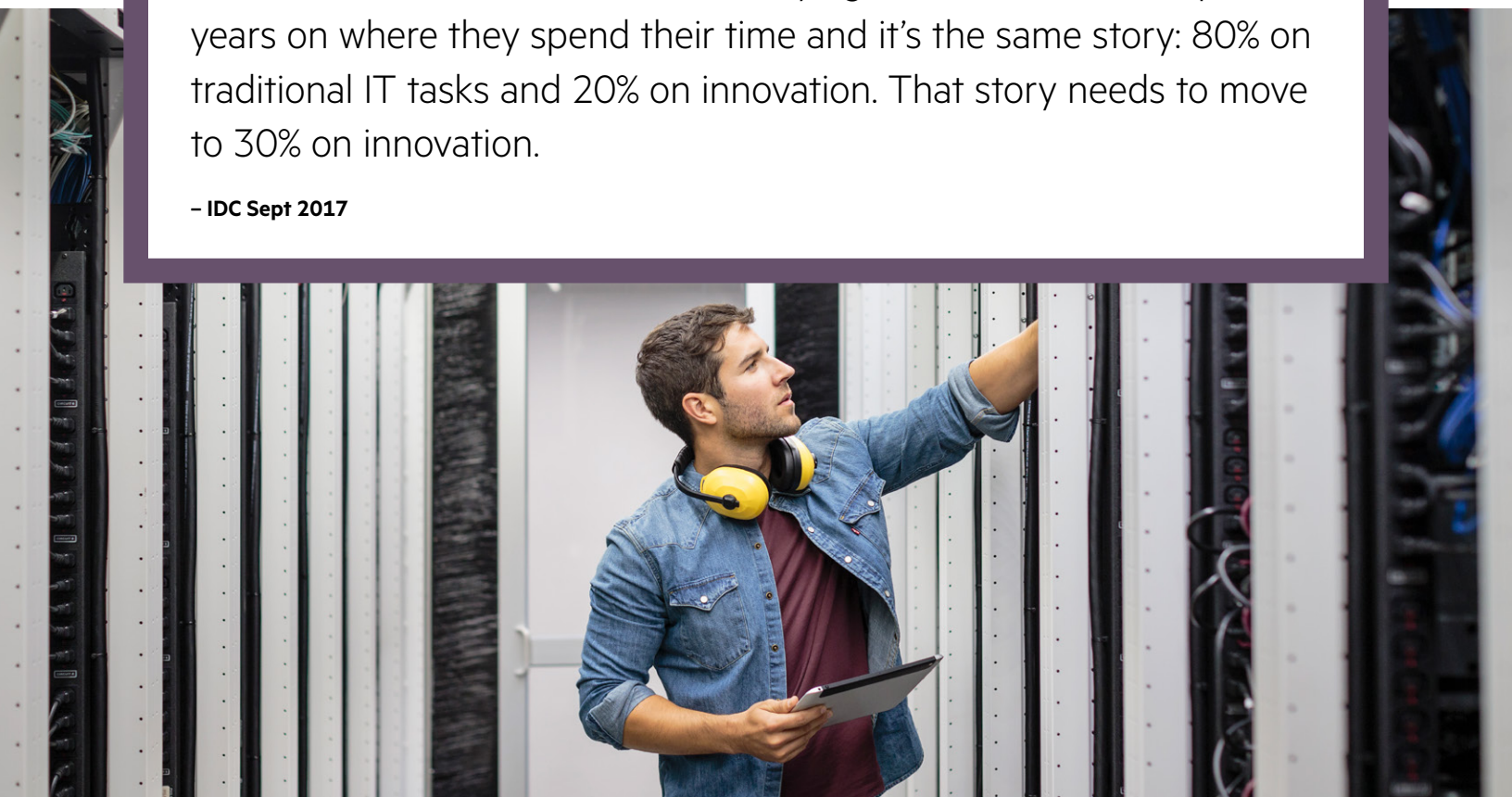
Delivering consumption-based IT for On-premises Environments

Each organization chooses their own process to improve IT operations and services to reduce complexities and costs. However, HPE Pointnext has found ITaaS clients are typically concerned about these issues:

- The right mix is a continual adjustment and tradeoff around performance, costs, compliance, and IT governance.

- Continuous growth and capacity demands have presented difficulties to meet business needs quickly with existing IT.

> The amount of time enterprise IT spends on some datacenter tasks may be better spent driving use of IT by the business to drive the business forward," says Rob Brothers, VP Datacenter and Support Services at IDC, "We have been surveying customers over the past 7 years on where they spend their time and it's the same story: 80% on traditional IT tasks and 20% on innovation. That story needs to move to 30% on innovation.
>
> **– IDC Sept 2017**



• IT cannot continue to require large chunks of capital to support business growth.

• Operating IT has become too complex and expensive, with too many resources devoted to basic operations and fewer focusing on innovation. IT must explore all options for its operations, rather than continue to spend 80% of resources "keeping the lights on".

> 57% of enterprises stated complaints about slow performance were significant issues
>
> **– 451 Research November 2016**

Addressing these four challenges is the purpose of this HPE Pointnext transformational blueprint "Consume and Operate IT as a Service (ITaaS)." Each challenge is addressed through a "Guiding Principle" that includes an overview, a checklist of best practices, and expected results. Note that the investment in each principle varies by the needs of the organization, and tasks from any principle can take priority.

While the best practices outlined here can be applied in many ways, one way to gain the benefits and performance of ITaaS is the use of resources-on-demand. HPE Pointnext's approach to resources-on-demand is most frequently the HPE GreenLake Flex Capacity solution. This guide will point to best practices, from infrastructure design and operations, to innovative financing and staffing resources that are derived from that solution.

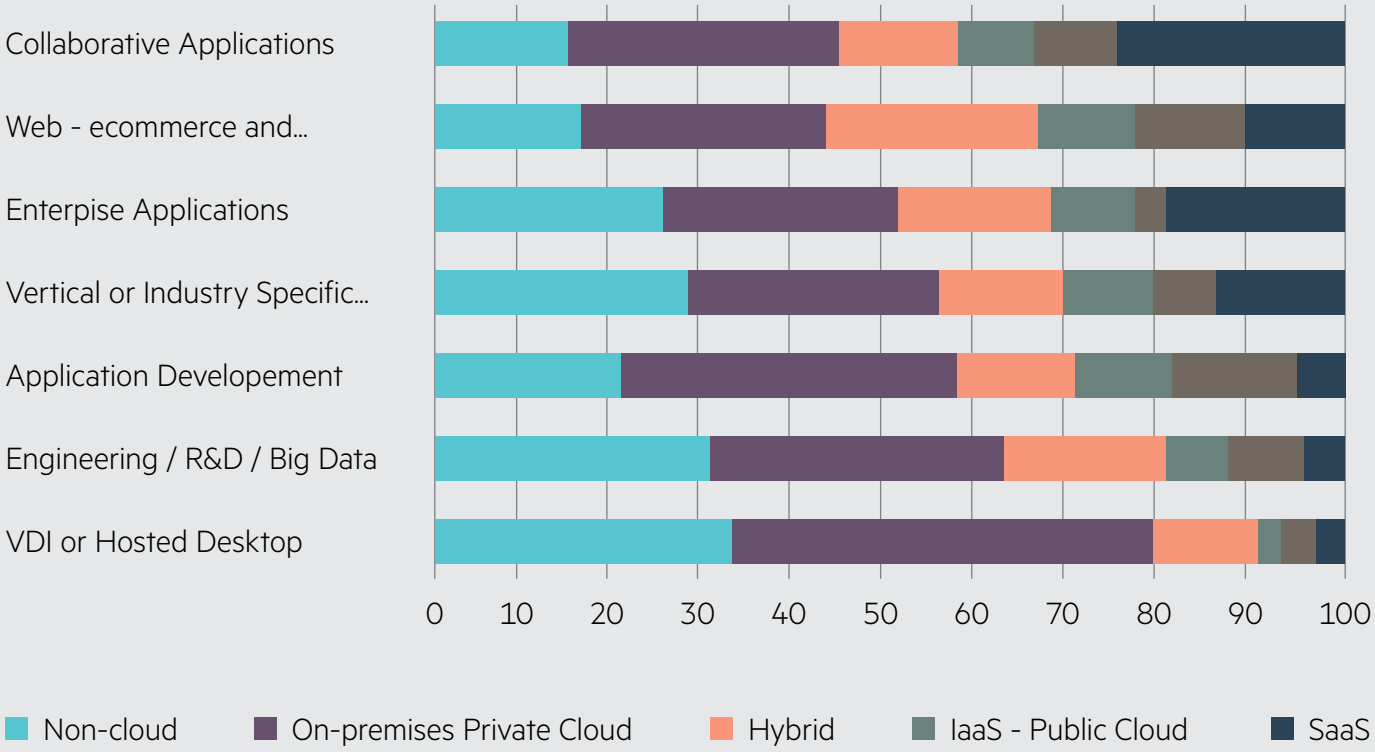
Guiding Principle 1: Define the Right Mix to Remain in Control Based on Current Business Needs

BUSINESS CHALLENGE: IT needs the "best fit consumption model" to govern IT usage while remaining in control of performance, costs, privacy, data location, and compliance.

Defining the right mix of hybrid IT platforms for your unique applications and workloads is a critical planning element. Platform choices can vary widely by organization, as shown below. Note that non-cloud is still a major player.

Taking a "right mix" approach can improve performance, cost, and agility by matching each application and workload to the right platform. This approach optimizes configurations to accelerate and promote the value of IT to the business. Consider the contrast:

- On-premises IT is based on a known configuration of platforms, technology, people, places and secured processes. It is a good way to stay in control of issues such as privacy, compliance, and performance. It is also costly, and many want to move to a cloud environment due to price and capabilities of service delivery anywhere, anytime.
- Cloud computing off-premises is good for some workloads, but may lack accurate data workload processing predictability for others. Usage and costs with cloud services are often different from what is typical for on-premise. It is not cheaper – it is simply pay-per-use, and there arecommitments needed. Costs often are ungoverned and can spiral upwards quickly.
- ITaaS delivers a public cloud environment in your own data center and allows the platforms, applications, privacy, access and control to remain in house while providing rapid, elastic, access to scalable capacity.



- Cloud Transformation in 2016, 451 Research (26 jan 16)

Checklist:

1. Perform a discovery assessment to identify current and planned workloads, business requirements, application characteristics, and capacity requirements.
2. Determine the right placement of workloads based on policy, cost and risk. Without control over workload placement, IT is open to penalties for failure of policies without the ability to control the risks.
3. Migrate the workloads to the appropriate platform based on right mix decision criteria.
4. Govern the performance, security, and availability of workloads, data, and IP. Whether it is on-premises or off, IT will remain accountable for performance of workloads, for compliance with data sovereignty and industry regulations, and the protection of IP and privacy.
5. Tightly control cost based on actual usage and cost data. Without the ability to control workload use on-premises, costs will escalate quickly.

Expected Results:

- Improved performance, cost, and agility by matching each application and workload to the right IT platform.
- Increased manageability of workloads and services. Accelerate and promote value of IT to the business.
- Reduce risk of non-compliance or privacy violations, or loss of IP.

451 Research did a study of a typical enterprise with flexible, scalable, onpremises infrastructure, versus a public cloud infrastructure, and determined it to be on par with public cloud, and 29% less expensive than a selfmanaged private cloud

– November 2016

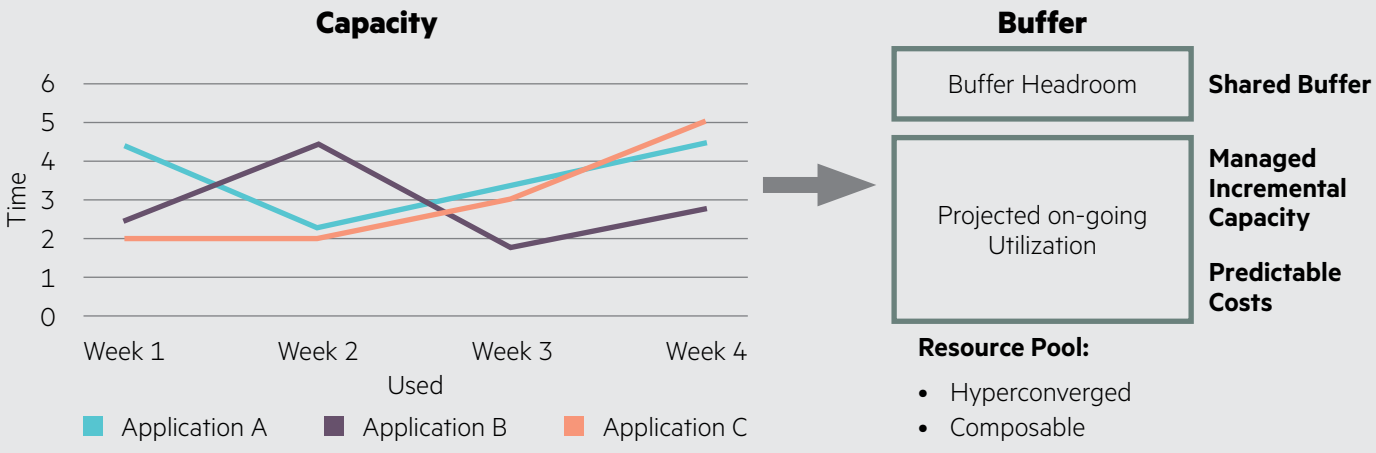
Guiding Principle 2: Put in Place Scalability-on-Demand Processes as Part of the ITaaS Business Model

BUSINESS CHALLENGE: The speed of change in business presents difficulties to meet business needs quickly with existing IT, which is complex and hard to move quickly onpremises. The cloud offers scalability on demand.

Scaling and managing capacity for enterprise systems is increasingly complex and expensive. The primary goal is to ensure IT resources are right-sized to meet current and future business requirements in a cost-effective manner. One way is to apply the IT Infrastructure Library (ITIL) framework, which covers management of business capacity, service capacity, and resource capacity.

Capacity management deals with monitoring the performance and load on servers, storage, networking, or other infrastructure to understand current usage and plan for the future. Capacity management is a challenge, and supply-to-demand mismatches can lead to performance issues, downtime, costly overprovisioning, and/or poor services delivery.

Additionally, IT can pre-commission a ready-to-use resource buffer. This provides public-cloud style headroom to on-premises IT and avoids long procurement cycles and unplanned capital expenditures. IT no longer needs to oversize individual environments to meet peak demands, unscheduled growth, or new services. This diagram illustrates the concept.



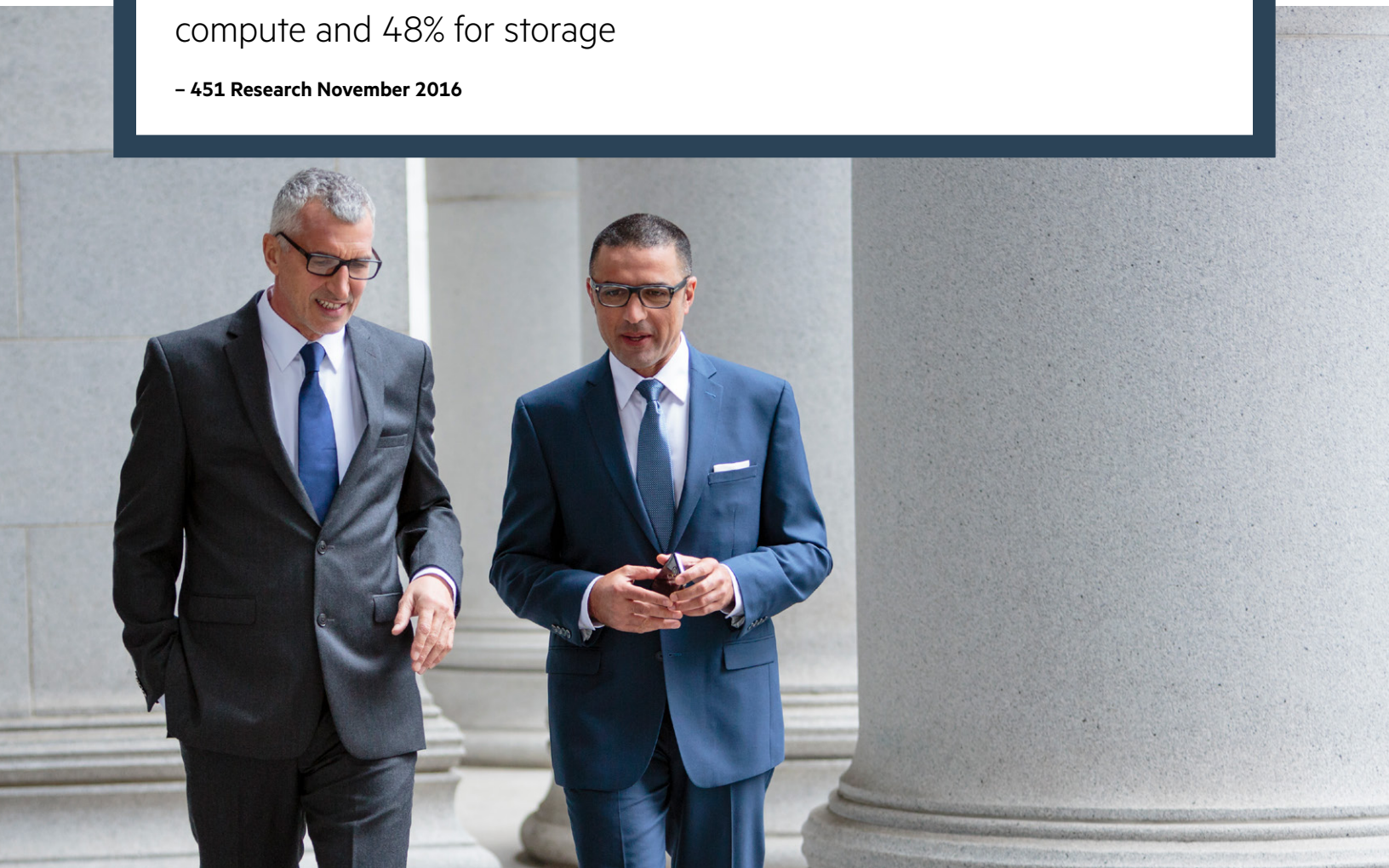
Good capacity management yields flexibility and scalability by metering the actual usage of services, data and storage. IT tracks cost across the infrastructure, software, and support needed to run on-premises workloads. This provides planners with actual data usage and requirements to ensure capacity stays ahead of production needs.

Checklist:

1. Have a proactive capacity management plan to meet growth demands and controls. Capacity should be actively managed. New growth, business fluctuations, new projects, new innovations and unpredictability of demand are always present and part of the process.
2. Plan for platform and infrastructure load variations and growth with adjustable short-term buffers. Start with the immediate needs of servers, storage, networking and software, and add a "buffer" of pre-provisioned capacity that can handle immediate short-term upside demands.

50% of customers surveyed experienced downtime due to capacity planning. Enterprises overprovisioning on average by 50% for compute and 48% for storage

– 451 Research November 2016



3. Perform active capacity management with actual data usage to plan. Data metering provides actual usage of data and storage, providing exact planning to optimize procurement. IT gets the scalability needed beyond what is currently in production.
4. Grow capacity to always remain ahead of what is being used. Consider new technology and architectures such as composable IT or new ways to support applications such as containers. This approach gives on-premises IT with scalability like the public cloud, while producing better value to the business.

Build scalability in IT infrastructure to gain the agility that the business requires.

Expected Results:

- Higher levels of resiliency in operations, capacity, availability, and scalability through optimized workload placement and capacity planning.
- Traditional IT transformed to a value creator with agility and flexibility to respond to business requirements more rapidly.
- Data metering to gauge actual data usage drives accurate planning and management for better performance and availability.
- Incremental additional capacity meets business needs with control of costs and risks.

Erasmus Medical Center, one of the largest, most diversified medical centers in Europe and a top institution in clinical medicine, relies on HPE GreenLake Flex Capacity to manage a huge database of secured patient information, as well as resolve continuous capacity demands and cost. HPE reduced complexity in the medical center's infrastructure and IT to a single service. This eliminated capacity shortages proactively (typically 1TB+/ day), and improved cash flow by reducing costs per unit capacity.

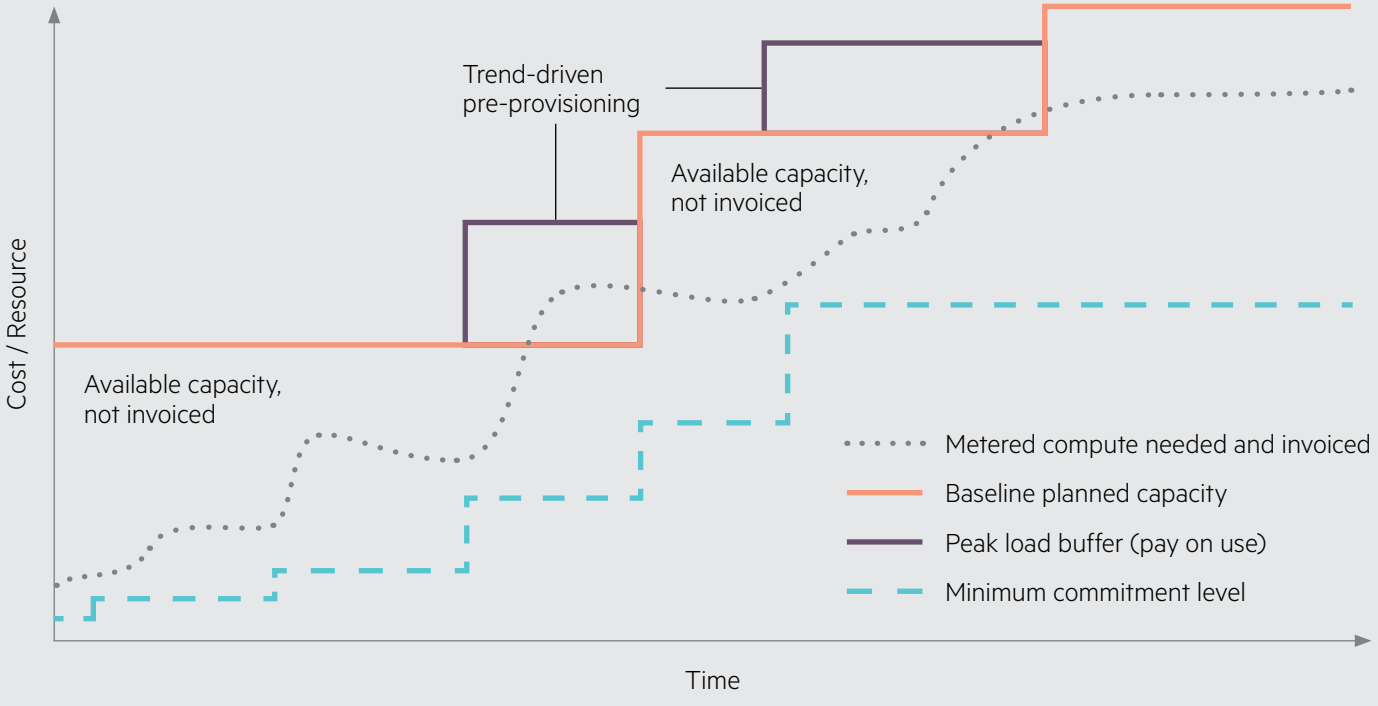
Guiding Principle 3: Align Cash Flow with Revenue Streams

BUSINESS CHALLENGE: IT cannot continue to use large chunks of capital to support business growth – IT needs to align cash flows to business metrics.

A traditional datacenter is an expensive cost center to the business, as it requires large, periodic, capital expenditures to deliver new IT resources. As stated earlier, ITaaS is attractive because the usage-based consumption model provides flexibility and scalability while reducing capital expenditures that can be turned into operational spending or cost avoidance.

For instance, resources-on-demand positions IT to combine the simplicity, agility, and economics of the off-premises cloud with the security, control, support and performance of an on-premises solution. This diagram illustrates how the resources-on-demand

> Pay only for metered capacity that you use and eliminate the cost of overprovisioning



approach delivers capacity to fuel ITaaS with an active buffer to stay just slightly ahead of demand.

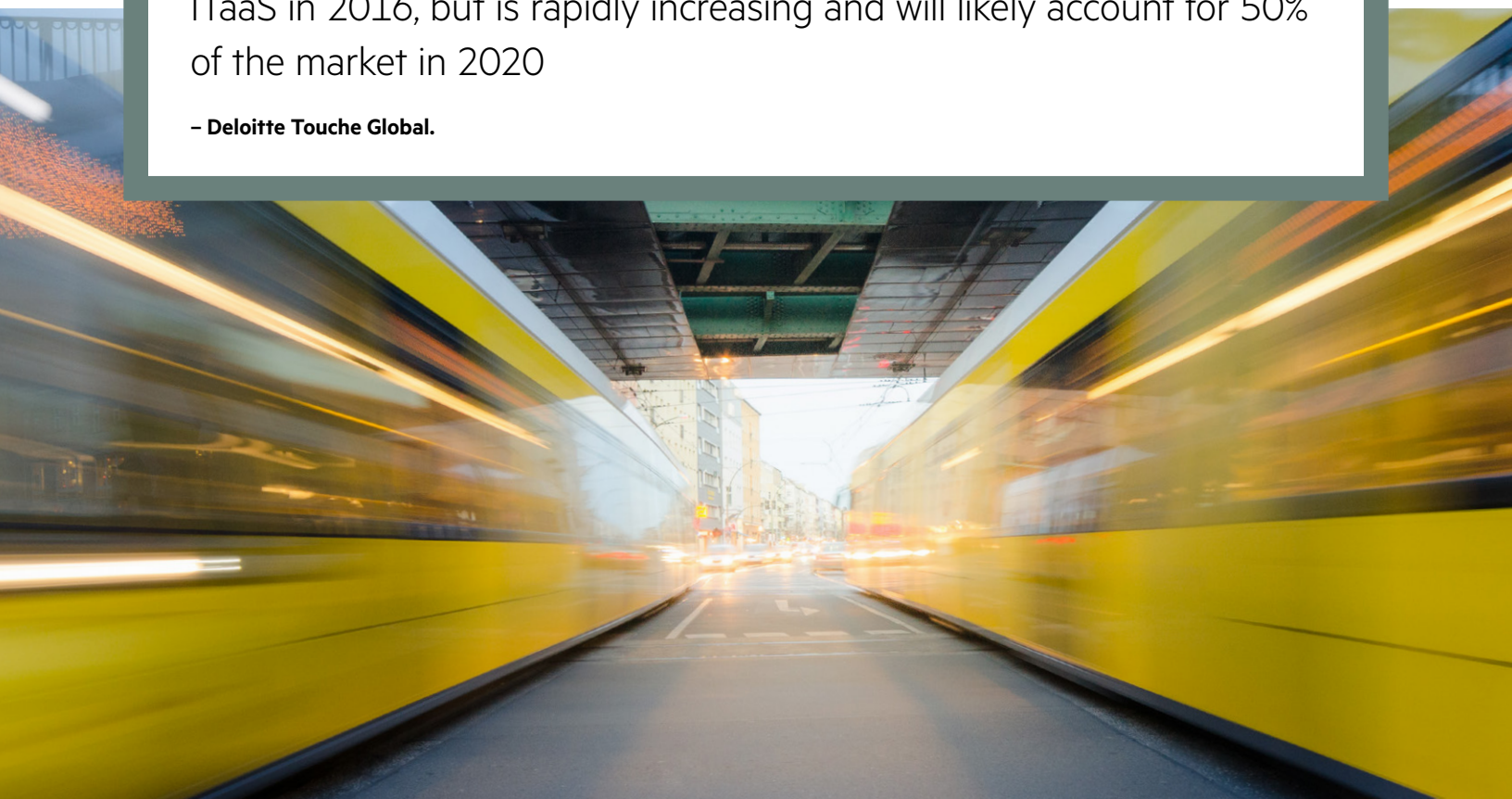
The orange line represents typical “large step” capital outlays for infrastructure. It maps poorly to actual utilization, and does not allow for performance peaks. The gray dotted line shows costs based on actual metered use above a minimum commitment. The dark solid line is the onsite buffer paid for as used.

This model reduces the risk the business faces when committing to new projects. Without the need for the major capital investments, there is less “sunk cost” invested in each project. If the project succeeds, revenue and expenses grow together. If it fails, there is little risk, just capacity returned to the pool to support other projects.

Checklist

1. Set up a pay-per-use consumption model and supporting infrastructure with the pay-per-use range set above a minimum commitment level.
2. Define a buffer management model to ensure peaks are anticipated.

> Companies are dedicating an increasing amount of their IT budget to pay-per use services. Less than 10% of enterprise spending went to ITaaS in 2016, but is rapidly increasing and will likely account for 50% of the market in 2020
>
> **– Deloitte Touche Global.**



3. Define governance to enlarge the base infrastructure pool based on predictive capacity planning.
4. Accurately align IT costs to business results. Metered data and actual usage can align costs and accurately gauge profit and loss with what is being used and when, as well as what is paid for this usage.

> By 2020, consumption-based procurement in datacenters will have eclipsed traditional procurement through improved "as a service" models, thus accounting for as much as 40% of enterprises' IT infrastructure spending
>
> **– IDC FutureScape: Worldwide Datacenter 2018 Predictions Nov 2017, DOC # US43152417**

Expected Results:

- Managed and controlled IT costs delivering pay-as-you-grow scalability.
- Eliminate overprovisioning costs of IT, which can soar up to ~38% of IT costs. [Source: 451 Research November 2016]
- Projects can start small and grow or fail fast without penalty. Using consumption-based IT, new projects come on-line without large capital expenditures, allowing for more innovation.
- IT cash flows are aligned with revenue streams.

Sogeti, a service provider of Capgemini, was looking for a flexible and improved, cost-effective infrastructure solution that enabled it, and Capgemini, to be more competitive and win bigger contracts while keeping costs manageable. The HPE GreenLake Flex Capacity solution gave them an IT consumption-based model solution. It provides agility, scalability, and flexibility by aligning capacity with their client's projects. It reduced overprovisioning of hardware costs by 30% (TCO). Sogeti pays only for what it uses and scales up capacity instantly – when its customers demand it. This newfound competitive advantage has helped the company forecast a 30% annual growth rate.

Guiding Principle 4: Assess your IT Operating Model – Where Should You Spend Your Resources to have the Greatest Impact on the Business?

BUSINESS CHALLENGE: IT must explore all options for operating IT, rather than continuing to spend 80% of resources "keeping the lights on".

Moving to a consumption – based IT model means rethinking how best to allocate staff resources. If IT focuses on day-to-day tasks, it leaves little time to work with LOB managers on innovation and new products and services. To address this, enterprises are embracing new technologies and services from vendors and service providers, while working to simplify IT operations. The combination can keep operations running smoothly and free up resources for these innovation projects.

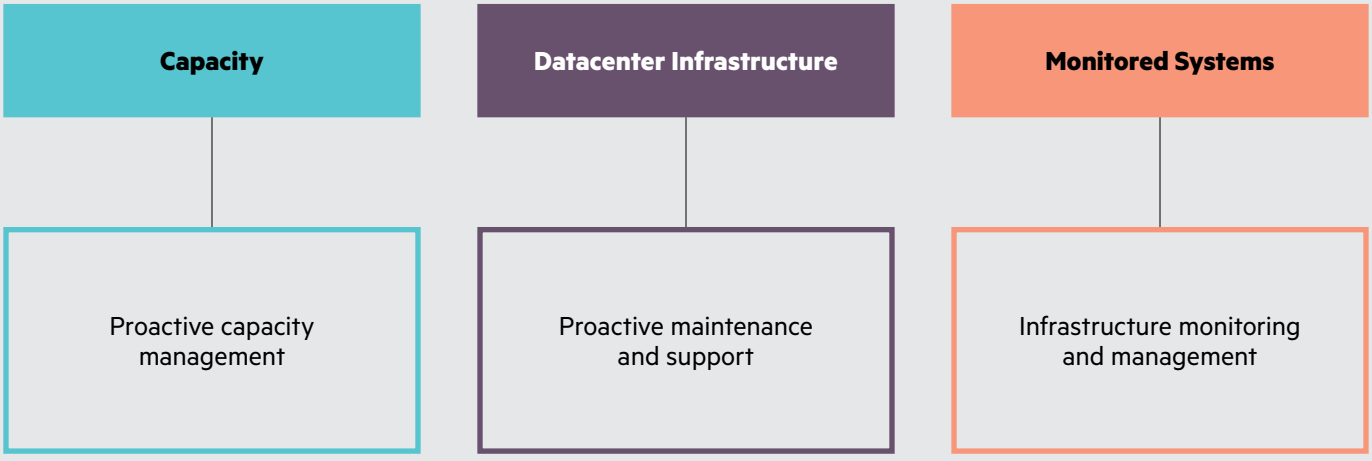
> Organizations will stop managing their infrastructure, either moving workloads to the cloud or automating and out-tasking work, so they can focus on adding value to the business
>
> **– Rick Villars, IDC 2016**

For example, some organizations are deciding to focus IT "above the line", relying on partners for IaaS and concentrating on delivering platforms, services and applications.

Managing operations and performance 24/7 is vital to data center operations. Many enterprises follow and require industry standards, tools and best practices to perform remote monitoring and management and to out-task routine IT work, maintain uptime, delivery, and set business continuity methods. IT Services Management (ITSM), IT Infrastructure Library (ITIL), ISO certified products and tools are the most common.

> About 80% of IT staff time is spent on IT operations or what might be called "undifferentiated heavy lifting," rather than on enabling innovation that allows the enterprise to competitively differentiate itself. [1]
>
> **– IDC September 2016**

This diagram shows typical externally sourced tasks.



[1] "As-a-Service" IT Consumption Model for Digital Business Innovation, IDC September 2016

The challenge is finding the right technologies and third-party partners that can best solve problems, speed up services, adjust capacity and scalability rapidly, and reduce complexity and risks. The business expects a stable IT operation without disruptions or downtime with efficiencies in scalability, agility, compliance, and security.

Checklist

1. Move to a consumption-based model. Offering cloud-style services requires new skills to define, source, and manage cloud services. Engaging a partner to operate the infrastructure reduces time and effort to move to production.
2. Consolidate relationships and simplify operations by handing off standardized operational changes.
3. Automate processes and procedures. Beyond automation, rely on thirdparty vendors when it is cost-effective.
4. Apply ITIL practices and proactive, preventive maintenance steps. Vendors and service providers that provide ITSM, ITIL and ISO products, tools and support can help monitor and manage the IT infrastructure. This allows more time for internal IT to develop and test new products and services.

Expected Results

- Better allocation of staff resources to critical projects.
- Improved IT services and more cost-effective operations through handoffs of operations support services and improved automation.
- IT staff can contribute more to strategic planning and services innovation, adding more value to the business.

Improve IT Operations – become more cost effective and simplify hybrid IT management

Dansk Supermarked Group (DSG), Denmark's largest retailer, runs several e-commerce businesses and four retail chains with 1,467 stores in four European countries. Harnessing Big Data for competitive success, DSG transformed an IT bottleneck into an engine of in-store retail analytics and business agility, resulting in increased revenues and reduced waste. The IBM Power and DB2 platform DSG was using to support its SAP Business Warehouse (BW) could not load data fast enough to generate timely reports. Migrating to HPE ConvergedSystem 500 for SAP HANA provided an integrated solution including processing, storage, backup, and recovery. DSG chose delivery via HPE GreenLake Flex Capacity, which enables capacity scaling and frees capital. DSG's systems now take in massive amounts of transactional data 24x7 from point-of-sale systems in all its stores across Europe, analyzes it quickly, and delivers timely, information-rich reports to decision makers – unleashing growth, competitive agility, and customer insight.

HPE Pointnext Approach to Consume and Operate IT as a Service

HPE Pointnext helps organizations adopt the right mix of IT through the design and execution of the right workload placement. Many years of deployment experience and supporting global IT organizations via HPE Flexible Capactiy has honed the solution to provide major returns in cost savings and agility. HPE's breadth, depth, knowledge, and expertise doing this for global customers has positioned them as subject matter experts in this field.

Advisory and Professional Services from HPE Pointnext assist customers in the decision-making process and automate the migration. Most deployments are based on the HPE GreenLake Flex Capacity service of active capacity management, proactive performance buffer provisioning, and a usage-based invoicing. Often, customers choose to out-task routine work with HPE's OSS service.

The beauty of HPE GreenLake Flex Capacity is two-fold:

- IT organizations get infrastructure delivered to them as a service, paid for on a monthly basis. HPE is responsible for maintaining the infrastructure, ensuring buffer capacity is available, and training the IT organization on how best to deploy it to its downstream customers.
- IT can host workloads on demand for their customers using best practices operational techniques, orchestration, and service catalog technology. IT never has to be concerned with performance limits, since HPE owns the responsibility for the ongoing and buffered provisioning.

- Improve agility and accelerate innovation
- Reduce operational complexity and risk
- Maintain control and security
- Improve operational efficiency across solutions and IT environment
- Rely on a structured approach based on standards and proven processes

As we have discussed, adopting a consumption-based model shifts the way IT typically works to a more value-added resource for the business. HPE Pointnext summarizes the journey as follows:

1. Assess portability. Determine best platforms and capacity requirements.
2. Support migration. Ensure applications can be hosted appropriately.
3. Specify initial environment. Deploy a tightly monitored new infrastructure to set a baseline to grow from.
4. Monitor usage and cost. Develop a capacity usage profile to simplify future planning and tightly align charges to resources used.
5. Adjust capacity. Set a buffer to absorb short term peaks in utilization and growth. Boost total resources as needed to maintain buffer capacity.
6. Optimize operations services. Out-task routine services whenever possible to focus in-house resources on innovation.

HPE Pointnext has consolidated their experiences working with enterprises globally into a comprehensive methodology. Services from HPE Pointnext – such as Workload Portability and Migration services, along with HPE GreenLake Flex Capacity – help the customer adopt and operate a successful ITaaS production environment.

Conclusion

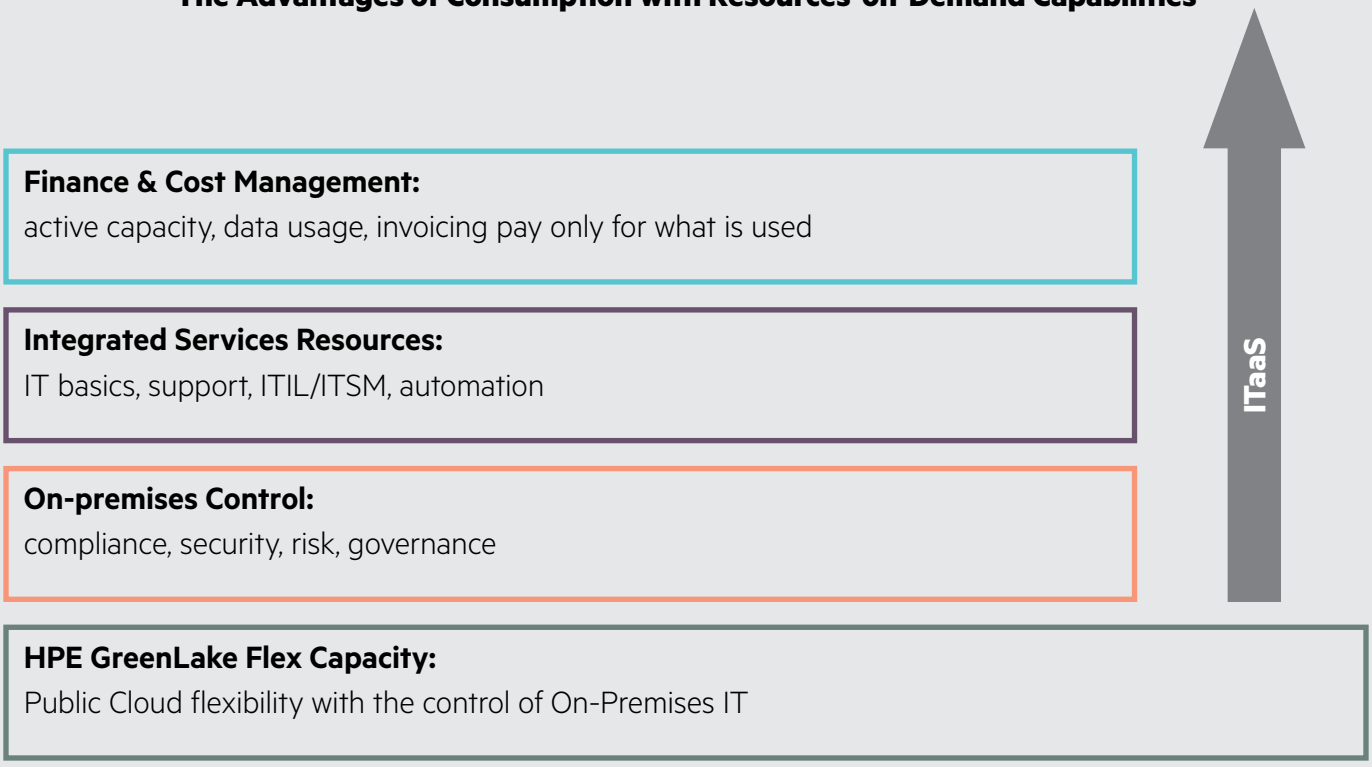
Making on-premises IT flexible from both service delivery and cost management perspectives has been an ongoing challenge. The HPE GreenLake Flex Capacity solution, supported by HPE Pointnext assessment, migration, design, and operational services makes this a reality.

Enabling successful deployment of IT as a Service doesn't mean giving up traditional IT operations of delivery and service. Instead, it offers the agility and economics of a public-cloud experience, with the security, control, and performance of on-premises IT. Business users get a proactive, flexible capacity buffer that enables adding new resources quickly.

With HPE Pointnext guidance and support, organizations have put this model to work for their on-premises infrastructure. With resources-on-demand and reduced overprovisioning of environments, businesses can do more with less, quickly.

HPE, with HPE Pointnext, is a proven, leading edge provider of services and infrastructure to support IT as a Service. While the on-premises options for a Hybrid IT landscape continue to evolve, taking advantage of the skills that led to this blueprint gives organizations a leg up on their competition.

The Advantages of Consumption with Resources-on-Demand Capabilities



Additional resources

IT-as-a-Service listings and links

HPE Pointnext

HPE GreenLake Flex Capacity

HPE Workload Portability Services

HPE Datacenter Care Operational Support Services

Hewlett Packard Enterprise

December 2017

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