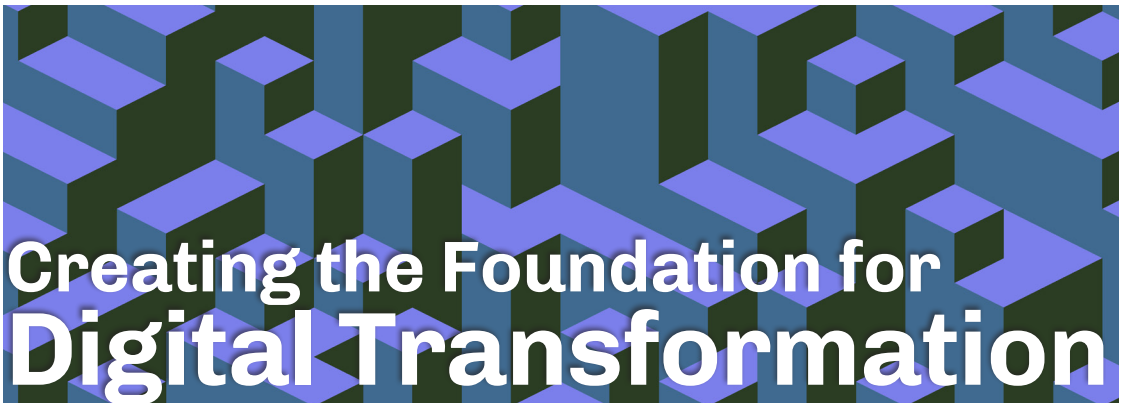

Creating the Foundation for Digital Transformation

A pathway to modernizing infrastructure for today's needs—and tomorrow's

Momentum is building across market segments for migrating legacy, proprietary Unix/Windows platforms to open source–based systems.[1] Driven by digital transformation, the widespread growth of cloud computing, mobile, and big data analytics, competitive organizations are looking carefully at upgrading their core infrastructure to assure agility and efficiency. It's necessary to prepare for the future.

Everyone is talking about digital transformation, so much so that it sounds like a utopia of insight and efficiency. There is no utopia in IT, but there is the potential for creating a foundation for communication and collaboration between and among employees, partners, suppliers, and customers. The ultimate goal: high levels of productivity throughout an ecosystem, to make enterprises smarter, faster, and more competitive.

Digital transformation is a way to make enterprises more technologically adept—that is, going beyond using IT as a utility to infusing technology deeper into business processes. It is a way to bring data together for an almost omniscient view of the enterprise. It helps executives see how business processes interact, and helps them react swiftly and appropriately to changes in their markets and business.

How does that evolution come to pass? It's not easy. Inertia reigns. Barriers loom. One hallmark of digital transformation is the elimination of silos. But there are cultural and technical obstacles to doing that. Culturally, they too often represent territories or areas of expertise that employees are loath to give up. Technically, enterprise applications have dictated business processes, rather than being adaptive to changing business practices. And everyone—from developers to employees—has grown accustomed to them.

The transition becomes more difficult because digital transformation encompasses external data access as well. Enterprises have discovered that giving suppliers and especially customers access to back-end databases can speed up interactions, reduce costs, and limit manual errors. But that also means accommodating a complex array of client devices. Keeping those connections secure presents a challenge as well.

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Shifting from "the way it's always been done" (not to mention navigating a better path to productivity) is hard, because few business processes are limited to just one department. Sometimes figuring out how to apply the next generation of technology without abandoning the current one is just plain daunting.

And make no mistake, we're talking about a lot of new technology. Deploying one new technology into an enterprise can be a challenge. Today's ingredients for digital transformation—cloud, mobility, analytics, social media, open source—take the challenge many steps further.

The Art of the Possible

Nevertheless, it can be done. For one thing, the aforementioned technologies have natural associations. Customers use social media on mobile devices, and analytics tally responses, reactions, and recommendations. It's easier to gather that asynchronous flow of information in a cloud-based system, which can be built and deployed faster using industry-standard and open source technology.

Unlike technology shifts involving a single application, digital transformation can deliver significant benefits because it spans the enterprise. Digital transformation can reduce complexity and increase performance by leveraging enterprise-class technology for better business outcomes, and—perhaps most important—help enterprises more easily adapt new technology to meet emerging, even unseen, business challenges and opportunities.

But digital transformation can't be achieved with an outdated infrastructure. It requires a strong foundation, one that eliminates the need for one-to-one integration between systems. Digital transformation substitutes time-consuming integration with modern, cloud-ready APIs for exchanging information between loosely coupled systems. The result is a modern infrastructure that can accommodate today's business challenges and tomorrow's competitive challenges.

The Three Key Elements of a Foundational Infrastructure

How can enterprises start on the journey toward digital transformation? Thankfully, it's not a question of throwing everything out and starting over. Some level of integration with older systems—the ones running Windows and Unix on current hardware—is necessary, but part of the discussion involves rationalizing the enterprise application portfolio; in other words, figuring out what stays in a legacy system, what functionality gets replicated in a new paradigm, and what might go into a private or public cloud.

There are three key elements to a foundational infrastructure:

- **Open source software.** Enterprises derive multiple benefits from open source software, ranging from the lack of hardware lock-in to immediate cost savings. Thanks to the vast participatory community supporting open source efforts, its operating system options offer extensive features relating to current viability, from hooks into cloud computing to security capabilities.
- **Industry-leading hardware.** Even as it seems that everything is becoming "software defined," from networking to storage, hardware doesn't lose its importance. In fact, it needs to be more robust than ever before in order to handle the deluge of big data on the back end and mobility applications on the front end. Only with the latest hardware can enterprises truly modernize their data centers and their cloud connectivity.
- **Performance/scalability.** A key facet here is not only accommodating baseline performance, but also accommodating new demands from business quickly and with agility. That's why scalability is so important. Business units want to be able to access workloads so they can deploy new projects quickly, without suffering from the delays of procurement and deployment.

By thinking of these three elements in aggregate

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as opposed to separate issues, enterprises can begin their transformation. And CIOs have perhaps a once-in-a-career opportunity to argue for investment in these kinds of improvements.

Why? Because surveys show that CEOs recognize the value of these technologies. When PricewaterhouseCoopers asked CEOs in 2015[2] what technologies they thought would facilitate digital transformation the most, respondents cited mobile technologies for customer engagement (81%), data mining and analysis (80%), cybersecurity (78%), the Internet of Things (65%), socially enabled business processes (61%), and cloud computing (60%). The time to modernize is now, if only because the opportunity and the capability loom large.

The Payoff of Infrastructure Modernization

IT executives might rightfully ask what the payoff is. Some pundits say that only the enterprises that embark on digital transformation get to survive; the others will stumble. However, the real payoff is not surviving, but thriving. It's the ability to respond to new business opportunities. It's the ability to improve customer engagement. It's the ability to attract new talent, especially among millennials, and help employees be more productive.

Most important, it's the ability to respond quickly to changing conditions. Too often, by the time some long-winded rollouts are finally complete, their value is diminished because the market landscape has moved on. Investing in technology and an infrastructure that's designed for agility, for changing conditions, diminishes that threat.

Because open source software is by definition flexible, and because hardware continues to advance in terms of processing power, storage capability, and network connectivity, enterprises derive two important advantages.

On the business side, enterprises benefit from open source innovation that enables agility, which gives them a competitive advantage in addressing new business projects. They can respond quickly to new projects and, even better, reject them when they don't succeed, moving onto the next idea without bemoaning huge sunk costs in time, money, and staff resources.

On the IT side, enterprises can save money while still providing performance and scalability. Applying a DevOps mentality—that is, closer collaboration between developers and operations, allowing for faster turnaround of ideas—may be a cultural challenge, but it helps create an environment of continuous improvement.

In this new world, customers (and frequently employees) expect new capabilities to come weekly and sometimes even daily—certainly not yearly. An enterprise that has undergone digital transformation knows how to respond quickly to requests for new ideas, new features, and new capabilities—and will do better at retaining both customers and employees when they do so.

A Digital Transformation Success Story

Some companies are already deploying open source software with the latest hardware in order to take advantage of new performance capabilities. DreamWorks Animation SKG, the studio best known for Shrek, Madagascar, and others, required rapid and cost-efficient scalability of computing and resources based on its production schedule. Because its animation development is closely tied to its revenue stream, it required reliable mission-critical systems at multiple facilities.

The studio deployed a grid infrastructure using the Enterprise MRG application platform from Red Hat, the leading developer of open source Linux; that infrastructure, which incorporates messaging, real-time optimization, and grid functionality, encompassed more than 30,000 cores for rendering animated images. It also deployed Red Hat Enterprise Virtualization as the platform for its services, replacing technolo-

Hewlett Packard Enterprise and Red Hat have created a partnership that brings together the best of both companies, along with consulting and migration services.

gies from both VMware and Oracle, for both load balancing and availability. On the hardware side, it chose Hewlett-Packard Enterprise ProLiant Blade servers.

The result addressed all of the studio's needs, including rapid and efficient infrastructure scalability, reduced data center footprint and associated costs, and enhanced reliability and availability. After the transition, DreamWorks Animation was able to boost its output from two movies per year to three, and is currently working on ways to apply its computing power to track social media reactions from moviegoers after release, in order to better understand consumer reaction and improve marketing campaigns.

One of its engineers compared the cloud—infrastructure, platform, or SaaS—to commodity hardware in 2000: as a way to provide cost-effective, scalable resources that directly align to real-time business needs.

Getting Started

So how can enterprises get started on this effort from a practical standpoint, especially when it seems daunting at the outset? Certainly, it involves disseminating a new mindset, one that encompasses cloud, DevOps, and platform-as-a-service computing. But after that, the path is similar to other projects involving disruptive technologies: Find a project or a problem that's so in need of modernization that making a change is clearly in everyone's best interests.

That project shouldn't necessarily be high risk, but certainly something where IT can score a quick win. With success comes confidence, and IT can take a more challenging step up the chain of cloud complexity. Eventually, the idea of migrating to loosely coupled cloud-native applications won't be so daunting.

To help companies make the journey to digital transformation, Hewlett Packard Enterprise and Red Hat have created a partnership that brings together the best of both companies, along with consulting and migration services.

Hewlett Packard Enterprise has been a leader in hardware and enterprise software for years. It has served enterprises in their transitions from minicomputers to client-server computing to Unix-based systems to the cloud. Its hardware incorporates industry-standard technologies that are configured in such a way to accommodate any enterprise's performance and scalability needs.

Red Hat is the leading developer of enterprise Linux, representing more than 90 percent of the market. Its participation in open source communities goes far beyond its operating system, extending to its contributions to open source cloud technologies such as JBoss (Java Middleware Suite), OpenStack (cloud management), OpenShift (platform as a service), and Gluster and Ceph (storage).

By working together, HPE and Red Hat create significant advantages for their enterprise customers. They have developed and tuned Red Hat's operating system to run on HPE hardware, and can deliver integrated systems that eliminate the need for enterprise IT staff to install and configure the operating system software. That helps reduce time to value on these new, mission-critical systems.

By working with partners such as HPE and Red Hat, enterprises can get a head start over the competition—and stay ahead. ■

For more information on the capabilities Hewlett-Packard Enterprise and Red Hat jointly offer, visit https://www.redhat.com/en/partners/strategic-alliance/hpe

1 http://www.smartdatacollective.com/linuxit/340813/migrate-proprietary-software-linux-create-cost-savings

2 https://www.pwc.com/gx/en/ceo-agenda/ceosurvey/2015.html