Title: How to Become a Digital Business with Containers and Cloud-Native Software

Cloud has become the backbone of today's digital business. To stay competitive, relevant and differentiated amid uncertain conditions, every business is coming to depend on software-driven innovation to reach customers online, collaborate virtually, and create AI-powered business offerings. Traditional monolithic, waterfall style software development often took years to define and build, changed slowly and required tight coupling to specifically configured infrastructure. Today, staying in business means responding to change almost instantly using agile, iterative and modular approaches to building digital business applications that can take full advantage of flexible cloud infrastructure

Software for Cloud is Fundamental to Digital Business

Increasingly, developers are using cloud-native software, built on containers and microservices, to take advantage of automated test and deployment platforms and to optimize application cost and performance using on-demand cloud infrastructure. Containers allow developers to write an application once and deploy widely across consistently configured container platforms running on-prem and in public clouds. Open source software communities provide important technology for many aspects of cloud native application development, monitoring, automation and orchestration.

Flexibility and agility enabled by highly modular cloud native applications can launch new features quickly and improve the customer experience much more frequently and cost effectively than was possible in the past. These capabilities are invaluable when market conditions change and organizations need to rapidly pivot the way they work with customers and suppliers.

New IT Management Strategies Emerge

Digital business success depends on tight alignment across software development and infrastructure operations. When an application changes, infrastructure must adapt instantly.

Reliance on a mix of on-premises and public cloud services results in complex interdependencies that can make it difficult to rapidly troubleshoot and remediate problems. As a result, IT teams can no longer manage and secure applications and the enabling infrastructure using traditional configuration, migration, troubleshooting, monitoring, and change control strategies.

Automation as code has been an active area of open source investment. Rather than rely on traditional, vendor specific configuration tools, open source approached to programmable automation allows IT and DevOps teams to agree on standard configurations, workflows, and policies defined in modular, programmable code. Typically, vendors share system specific code and software defined workflows with open source repositories where it can be shared and reused by many

organizations. Internally, IT and DevOps teams can leverage this open source code to build private repositories for internal reuse. Turning automation into reusable code allows for faster, more consistent and repeatable infrastructure management and software deployment, while improving security and reducing human error.

Supported open source technology underpins digital business

Clearly, open source software provides bedrock technology to power digital business application developers and cloud-based infrastructure. From Linux, to Kubernetes, to automation-as-code such as Ansible, open source communities allow multiple vendors and industry thought leaders to collaborate on modern digital technology transformation.

To encourage experimentation and iterative feedback, open source communities make raw software code freely available for download and reuse. Early adopters often implement this "upstream" code as the basis of leading-edge digital projects and proofs of concept. While this often works well for small efforts, it can be difficult to ramp up to enable large scale production requirements.

Upstream open source code is unstable by design. It changes frequently and is not backed by vendor support. Upstream code doesn't offer the type of hardening, backwards compatibility or integration testing that more organizations expect from commercial software.

When prototyping is complete and the piloting phase begins, most enterprises will turn to commercial implementations of open source software technologies to replace the community software used during early development phase. The value of commercially supported open source solutions, such as Red Hat Ansible Automation Platform and Red Hat Enterprise Linux, is that customers get support services in accordance with their business needs in addition to predictable lifecycles, and well vetted patches and updates that are hardened for commercial use. In most cases, tapping a third-party provider leads to a return on investment that frees staff resources to further invest in the applications and systems that differentiate the business from competitors.

Learn more about how open source enables digital business

Open source software, cloud and containers are at the core of digital business. Regardless of the size of your organization or your specific business mission, it pays to think strategically about how to best introduce, scale and support these technologies as part of your digital business strategy.

To learn more, listen to IDC's recent podcast series, sponsored by IBM. IDC offers guidance for getting started with digital business powered by open source with the podcast How open source software is built today. Simplifying IT Infrastructure Administration with Open Source and Automation digs into

the role of open source technology in enabling digital business <u>and Flexible, digital infrastructure for your cloud</u> discusses how to pull it all together.