Why open source is a **mission-critical foundation**

Open source's inherent transparency, portability and innovation have made it a key driver of the digital revolution

Christopher Smith

Red Hat

Open source no longer needs validation as the top technical choice for any business or mission. It's now part of the mission-critical foundation in every Fortune 100 company, all Cabinet-level federal agencies and nearly every organization of consequence globally.

Data centers, cloud computing infrastructure and offerings, and edge computing devices are built on Linux. It's the technology that enabled the digital revolution. On top of Linux, organizations depend on other open source technologies such as Kubernetes, Apache Kafka, Git, Elasticsearch, PostgreSQL, Cassandra, Java, JavaScript, Go, TensorFlow and countless other projects.

There are many reasons why it's advantageous to move away from proprietary solutions. Open source technologies evolve rapidly based on the diverse contributions from global companies, government agencies, universities and individuals. Furthermore, the code is transparent, and open source technologies have proven to be more secure based on that visibility into all components. Open source

has eliminated silos and allowed organizations to move away from legacy systems. That openness also gives government agencies total flexibility in their choice of partners and consumption models.

A consistent technology layer across all environments

Open source transforms the way agencies manage hybrid and multi-cloud environments. The most critical technology in the cloud, across all providers, is Linux. Everything is built on top of that foundation — both the infrastructure of the cloud and cloud offerings. Given the right partner, the promise of Linux is that it provides a consistent technology layer for agencies across all footprints, including multiple cloud providers, on-premises data centers and edge environments.

From that foundation, agencies and their partners can build portable architectures that leverage other open source technologies. Portability gives organizations the ability to use the same architectures, underlying technologies, monitoring and security solutions, and human skills to

manage mission-critical capabilities across all footprints.

In addition, avoiding proprietary technologies means that agencies avoid expensive and restrictive silos of technological capability and their associated skills and training. Instead, one approach applies to all environments when building with open source technology in a hybrid cloud environment.

Facilitating an enterprise approach to automation

When agencies achieve consistency across all footprints, they can start to look for operational optimization, and the most efficient way to start is an enterprise approach to automation.

Open source technology facilitates the move to automation, which has broad implications for IT operations. The most impactful automation and configuration management technologies of the past 20 years were born in open source projects out of necessity, including Ansible.

Manual, time-consuming and error-prone processes are desirable targets for automation. Anything

Dynamic Wang

> Data centers, cloud computing infrastructure and offerings, and edge computing devices are built on Linux. **It's the technology that enabled the digital revolution."**

that must be executed repeatedly across a technology operation can be automated; indeed, automation covers every aspect of technology operations. Security, the provisioning and patching of servers and network devices, configuration management, cloud operations, and business processes should all be considered part of a well-defined approach to enterprise automation.

Furthermore, the move to enterprise automation enables the adoption of proven, modern approaches to software development, such as DevSecOps and platform engineering.

Open source-facilitated automation profoundly impacts IT operations with speed, accuracy and security improvements. In addition, rather than spending time on operations and maintenance, the IT team can focus its

energy on new, innovative projects that support government missions. A technology stack built on open source concepts puts organizations in an agile position to adapt to meet the needs of modern digital business. ∎

Christopher Smith is vice president and general manager of the North America Public Sector at Red Hat.