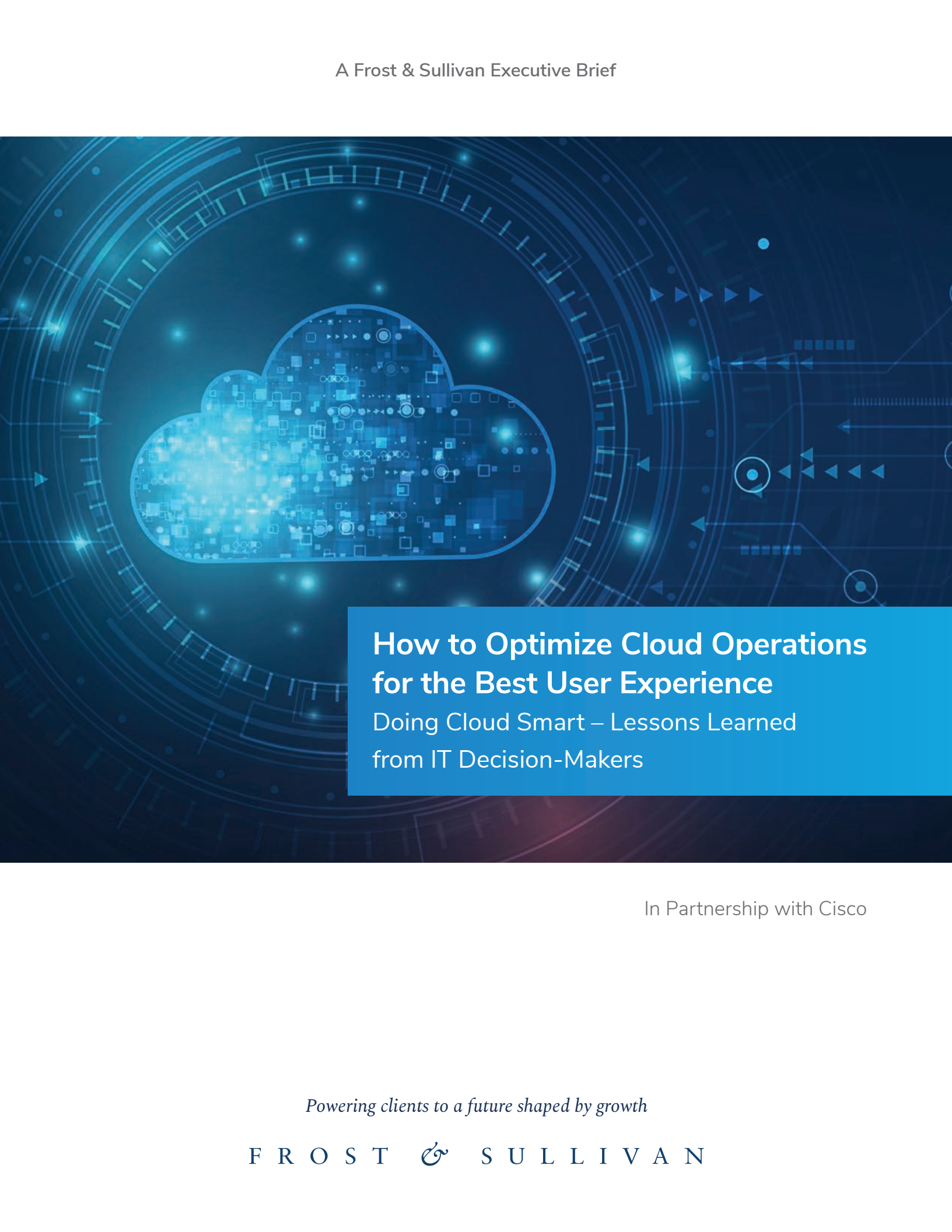




How to Optimize Cloud Operations for the Best User Experience

Doing Cloud Smart – Lessons Learned
from IT Decision-Makers

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F R O S T  S U L L I V A N

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Today's enterprise cloud represents a complex digital landscape. It is accessed via multiple technologies and extends from on-premises data centers to the edge and public clouds. The more applications, technologies, and vendors, the greater the complexity and additional business risk.

APPLICATIONS: THE NON-NEGOTIABLE KPI

For stakeholders, the measure of a successful cloud strategy is an excellent, consistent application experience. As more employees, customers, and partners engage with the business via online portals or mobile devices, the application becomes the face or standard-bearer for the brand. The application experience is the non-negotiable key performance indicator (KPI).

A successful application experience starts with an infrastructure that delivers speed, consistency, and flexibility. It relies on native integration between on-premises data centers and different public clouds to deliver cost- and performance-optimized solutions. It also calls for freedom from lock-in, with open standards and APIs replacing all-or-nothing stacks and usage-based subscriptions instead of restrictive licensing terms.

However, application experience is not only about technology. As businesses move to the next phase of their cloud strategies, they are focusing on optimizing operations. This requires close collaboration among different IT “domain” teams—infrastructure, network, security, and application development—to foster innovation, streamline processes, and enable closer collaboration within and across organizational lines.



As European businesses pursue digital transformation, they already recognize the strategic value of the cloud model. Among Europe-based IT decision-makers surveyed by Frost & Sullivan in 2019:

77% agreed that “the cloud is the most critical part of our digital transformation strategy.”

80% said their cloud strategy is “essential to remaining competitive in our industry.”

80% cited “innovation” as a top corporate priority.

Furthermore, IT leaders expect a move to the cloud will help them achieve strategic goals, as follows:

80% of respondents expect their cloud to enable them to increase overall app availability and performance.

79% expect to deliver services and applications faster.

77% expect to reduce overall IT costs.

Yet the IT leaders surveyed by Frost & Sullivan also acknowledged the challenges they encountered in their efforts to implement an optimal multi-cloud environment. Following are the top lessons learned by IT leaders, taken from the Frost & Sullivan Cloud User survey, along with tips for your own cloud implementation.

TIPS FOR OPTIMIZING MULTI-CLOUD OPERATIONS

1 Application performance may suffer when applications are moved. Eighty-one percent of survey respondents said their public cloud applications sometimes failed to meet their users' expectations for consistent performance and availability.

TIP Businesses should be prepared to choose the optimal infrastructure and deployment model (public cloud, on-premises data center, edge locations) to host a given application and be prepared to make a change as needs demand. To best leverage the power of public clouds and ensure an optimal application experience, Frost & Sullivan recommends incorporating automation and integration functionality throughout the application lifecycle. This includes:

- **Development and deployment:** Optimal application performance starts with close collaboration between IT stakeholders, including development, operations, network, and security. When application performance, security and dependencies are set out within policies, consistency across public clouds and on-premises infrastructure can be assured.
- **Ongoing management:** Continual analysis and visibility across the enterprise cloud (on-premises, public clouds, or edge) are essential to keeping the application operating optimally. Automated, policy-based remediation or recommendations can ensure resources are allocated appropriately.

“ Eighty-one percent of survey respondents said their public cloud apps sometimes failed to meet their users' expectations for consistent performance and availability.

2 An end-to-end approach to application security is essential. Seventy-four percent of IT leaders said they experienced security incidents that led to the repatriation of public cloud workloads to the on-premises data center. Sixty-seven percent said they were unable to ensure that security profiles were maintained in a hybrid environment, and 80% said they require a consistent, policy-based way to protect each application and dataset from breach and loss, regardless of deployment model or location.

TIP Traditional infrastructure-based security isn't sufficient when your applications are deployed across multiple clouds. Frost & Sullivan believes the right approach is to apply security profiles at the application level and not the infrastructure level. To mitigate business risk and protect digital assets, organizations should address security holistically (e.g., access, users, data, devices, workloads in the cloud) and integrate automated security features so that they follow the application wherever it is deployed.

3 Cloud costs can be difficult to control. Seventy-two percent of IT leaders said they struggled to manage costs to run their public cloud workloads, 70% said they have repatriated one or more workloads from the cloud to their on-premises data center because the costs were higher than expected, and 79% said it's important to have visibility into costs across the enterprise cloud continuum (on-premises data centers, public clouds, edge deployments).

TIP For several years, Frost & Sullivan has seen organizations suffer “sticker shock” at the actual cost of their public cloud deployments. The problem lies not with the cloud model itself, but how the cloud workloads are managed. Businesses often cite “cost reduction” as a driver to public cloud adoption, yet they neglect to manage their cloud deployments in a cost-optimized way. This may include “right-sizing” public cloud instances, migrating applications across clouds as vendor pricing and instance sizes change, and using modern deployment architectures, such as serverless, to minimize resource usage. Frost & Sullivan recommends businesses deploy management tools that maintain continuous visibility into costs and across public clouds and on-premises data centers. The most effective platforms employ artificial intelligence to assist IT teams by making recommendations based on machine learning and enabling the automation of placement and right-sizing of workloads across infrastructures.

“ Seventy-nine percent of respondents said it’s important to have visibility into costs across the enterprise cloud continuum (on-premises data centers, public clouds, edge deployments). ”

4 Managing workloads with consistency in hybrid environments can be challenging. Seventy percent of respondents said they struggled to integrate data center and cloud environments; 54% said they had trouble managing workloads across multiple cloud and on-premises environments.

TIP A source of frustration to businesses as they build out their multi-cloud environments is the proliferation of single-environment management tools and the need for in-house experts to run them all. Frost & Sullivan believes that unless the various environments (on-premises data center and public clouds) can be managed and scaled together, unless applications can easily be moved or split among environments, and unless common automation and management tools apply across the whole environment, then it's not actually a multi-cloud approach, but rather a heterogeneous conglomeration of infrastructure. Frost & Sullivan recommends that businesses deploy a comprehensive, open-cloud management toolset that offers common visibility and control over all infrastructures and automates key tasks. Ensuring visibility and reporting at a granular level will allow stakeholders across all domains to maintain optimal application delivery and ensure the business is protected by consistent governance processes.

5 Cloud is the foundation of a digital transformation strategy and requires support from all business stakeholders. Seventy percent of IT leaders said their early attempts at a hybrid cloud lost them the support of senior leaders of their company; 69% said the cloud failed to meet the expectations of line-of-business stakeholders.

TIP With strategic business goals tied to technology transformation, every employee has a strong stake in successful cloud implementations. Yet, in Frost & Sullivan's observation, this can lead to impossibly high expectations, as employees and leaders throughout the business eagerly latch onto the cloud model as a way to acquire software and resources they need to get their jobs done quickly, efficiently, and inexpensively. Non-technical employees often have a simplistic view of "the cloud," colored by consumer experience (e.g., downloading free mobile apps). Similarly, application developers may exploit the easy access to infrastructure resources to develop, test and deploy applications. Either instance can drive up costs, add unnecessary complexity, and expose the business to risk.

Frost & Sullivan believes the IT leader should engage all employees in planning and implementing the cloud strategy. As they champion a cloud model within their organizations, IT leaders should consistently communicate that "cloud" is much broader than a delivery framework or a deployment environment. The core team should include representatives from every area of the business—not only IT domains (e.g., network, operations, application development and security) but also line-of-business departments (e.g., customer care, finance, marketing and sales). The broader team brings valuable perspectives related to defining and delivering technology resources, whether customer-facing applications or productivity-enabling employee tools. Team members can also serve as internal "cloud evangelists," communicating milestones, sharing project successes, and spearheading necessary changes in processes or KPIs that will drive the achievement of business goals. With the right stakeholders involved in the planning, the cloud strategy will strike the optimal balance between freedom and risk control; that is, developers and users will have the freedom to take advantage of cloud technology to innovate and improve processes, while governance and security processes can appropriately protect the organization.

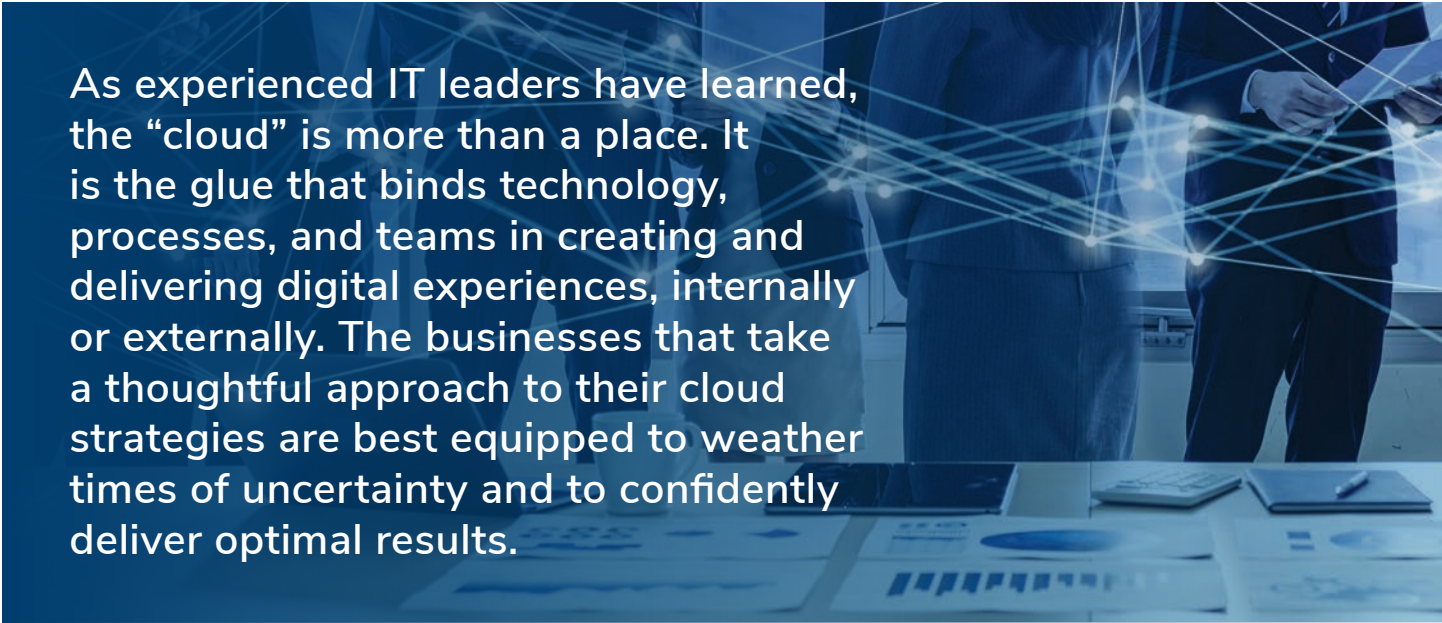


FROST & SULLIVAN PERSPECTIVE

The modern multi-cloud landscape can provide unprecedented flexibility and freedom to businesses. Besides the software as a service (SaaS) options that it offers, the infrastructure and platforms for hosting and development enable organizations to critically, now more than ever, optimize for performance and cost.

Most businesses have embraced using multiple clouds and are now working to maximize the value they get from this model, which requires:

- Adopting flexible infrastructure management and operational tools that are vendor-agnostic and the use of advanced analytics to support visibility and control across environments and vendors.
- Implementing open technology platforms designed for the cloud that use automation to orchestrate infrastructure and application deployment, scaling, failover, and migration across on-premises, edge, and cloud data centers.
- Addressing operational constraints by removing silos among workgroups, thus enabling all domains (IT infrastructure, operations, network, security, and line of business) to work together to build, deploy, and manage applications optimally.



As experienced IT leaders have learned, the “cloud” is more than a place. It is the glue that binds technology, processes, and teams in creating and delivering digital experiences, internally or externally. The businesses that take a thoughtful approach to their cloud strategies are best equipped to weather times of uncertainty and to confidently deliver optimal results.

DELIVER ON THE POWER OF CONNECTION

We make everything work because we know how to work with everything. Whether your need is security, networking, applications and workloads, we'll connect all the dots in your unique environment so you can focus on what matters most—delivering innovative digital experiences.

Go [here](#) for more information about Cisco's cloud portfolio.

NEXT STEPS

- Schedule a meeting with our global team to experience our thought leadership and to integrate your ideas, opportunities and challenges into the discussion.
- Interested in learning more about the topics covered in this white paper? Call us at 877.GoFrost and reference the paper you're interested in. We'll have an analyst get in touch with you.
- Visit our Digital Transformation web page.
- Attend one of our Growth Innovation & Leadership (GIL) events to unearth hidden growth opportunities.

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