A Resilient, Efficient, and Adaptive Hybrid Cloud Fit for a Dynamic Digital Business

Continuous Modernization, Autonomous Operations, Cloud-Like Experience

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Authors
Archana Venkatraman
Carla Arend

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“Storm of disruption” — businesses face unprecedented challenges

Disruptive events force organizations to not only develop digital resilience but also embed resilience in business processes and operations through resilient distributed (hybrid cloud) infrastructure.
All eyes are on technology, especially cloud-centric technology, as the foundation to weather the storms of disruption.

This is not about managing one crisis. It’s about being prepared for anything — and being able to adapt to any disruption to the business. Technology is critical to make this a reality.

46% of European CEOs cite accelerated adoption of cloud-centric technologies as the top tech initiative.

56% of European organizations are beyond the initial stages of cloud maturity and are using cloud in a repeatable, managed way.

25% of European CEOs are considering less expensive alternatives (lower-priced options for services) to prepare for energy-related price hikes.


Gonçalo Caseiro, Chair, INCM (Portuguese Mint and Official Printing Office)
Cloud-centric environments are prevalent in Europe and evolving

Hybrid and multicloud environments are a reality for 79% of organizations.

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Source: IDC European Multicloud Survey (September 2022); IDC European Enterprise Infrastructure Survey, May 2022

Tomorrow’s strategies are focused on designing resilient, governed, and optimized hybrid and multicloud environments.

For 95% of European organizations, enabling a multicloud environment is a priority, with 48% citing it as “very important” or “extremely important.”

Core infrastructure isn’t going anywhere.

Given the application gravity today and governance complexities, core datacenter remains the starting point for hybrid and multicloud excellence as it still hosts key workloads now and in the near future. European organizations expect to spend 44% of infrastructure budget on core and secondary DCs by 2024, similar to the 45% expected in 2022.
# Hybrid and multicloud are here to stay, but it’s not business as usual

Cloud adoption in the 2020s vastly differs from cloud adoption in the 2010s, with the pandemic being the tipping point for the recalibration of cloud strategy.

<table>
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<tr>
<th>Cloud Trends in the 2010s</th>
<th>Cloud Trends in the 2020s</th>
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<tr>
<td><strong>Expectations:</strong></td>
<td><strong>Deliver business value at speed; hybrid is the future</strong></td>
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<td>Reduce IT costs, redeploy staff to cloud, public clouds will eat datacenters</td>
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<tr>
<td><strong>Decision makers:</strong></td>
<td>60% of C-suite and 35% of business management are primary decision makers for cloud and IT infrastructure</td>
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<tr>
<td>Primarily IT directors, IT managers</td>
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<td><strong>Use cases:</strong></td>
<td>Cloud experience for all workloads</td>
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<td>Test and dev, web apps</td>
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<tr>
<td><strong>Tech status:</strong></td>
<td>Blurring lines between IaaS and PaaS, SaaS and stronger impact of DevOps, everything as code</td>
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<td>Neatly defined IaaS, PaaS, and on-prem categories with minimal integration</td>
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<tr>
<td><strong>Cloud strategy:</strong></td>
<td>Workload-defined, key focus on integration, interoperability, and portability</td>
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<td>Ad hoc adoption, hybrid cloud and multicloud by accident with silos of public cloud, legacy on-prem, and hyperconverged infrastructure</td>
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<td><strong>Security and governance impact:</strong></td>
<td>Distributed cloud with focus on data, use of dedicated cloud services</td>
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<td>Hasty workload repatriation, or maintaining status quo on-prem</td>
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<tr>
<td><strong>Skills:</strong></td>
<td>Focus on migration, operations, governance, management, Kubernetes orchestration, APIs</td>
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<td>Focused on cloud migration, developing public cloud experience, Docker management</td>
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<tr>
<td><strong>Choice:</strong></td>
<td>Multiple clouds, private cloud, edge computing, and on-prem programmable software-defined infrastructure all connected</td>
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<td>Dichotomy with organizations taking an &quot;OR&quot; strategy to pick cloud or on-prem or hyperconvergence</td>
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<td><strong>Experience:</strong></td>
<td>Building cross-cloud consistency, self-service, and FinOps</td>
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<td>Strong existence of shadow IT, public cloud bill shocks because of inappropriate workload placement and unused instances</td>
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<tr>
<td><strong>Sustainability:</strong></td>
<td>One of the top infrastructure decision drivers</td>
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<tr>
<td>Not an infrastructure decision driver</td>
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Infrastructure, workload, and governance complexities are increasing — hybrid cloud management needs to evolve

**Infrastructure nuances:** Addition of distributed infrastructure comprising hyperconverged infrastructure, edge environments, sovereign cloud components, multiple public clouds, containers, and software-defined infrastructure continues. This is increasing operational complexities, costs, and governance risks.

**CURRENT SITUATION**

Only 30%-40% of organizations rate their workloads running in hybrid and public cloud environments as “successful” or “very successful.”

**OUTCOMES OF UNSUCCESSFUL CLOUD STRATEGIES**

- Growing IT costs and management complexities
- Limitations in supporting innovative business needs or digital programs
- Poor confidence around security postures
- Inability to manage data and application sprawl
- Lack of relevant architecture to pivot to a future enterprise that is data driven, agile, resilient, and adaptable
- Operational friction

**NEW PARADIGM IN HYBRID CLOUD**

- Workload-first strategy to infrastructure
- 68% of organizations are currently using or planning to use sovereign cloud solutions
- Organizations planning to spend nearly 20% of infrastructure budgets in edge environment
- Modern databases that meet the needs of modern cloud-native applications

Lack of success, impact of cloud project failures, and unprecedented changes are overthrowing the traditional attitude to cloud adoption and operations.
Breaking free from complexity and deriving value from hybrid cloud requires a mindset change

**Day 0:**
Hybrid cloud adoption/migration

**Day 1 and beyond:**
Autonomous and intelligent hybrid cloud operations

**Day 2 and beyond:**
Capitalize on next-gen features in the ecosystem

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**MINDSET CHANGE IN MIGRATION**
Evolve cloud-first to workload-first strategy to determine the right infrastructure and right application strategy — should I lift and shift, should I modernize for private cloud, should I reengineer for public cloud?
Evolve from “big bang” migration to datacenter extension

**MINDSET CHANGE IN OPERATIONS**
Ensure building skills and management capability to operate in the cloud
Ensure unified, consistent cross-cloud governance and adopt unified control plane to be in control
Ensure energy efficiency and wide mix of energy sources

**MINDSET CHANGE IN OPTIMIZATION**
Leverage modern capabilities such as observability, automation, consumption-based pricing, and container platforms
Ensure an open, flexible ecosystem and a balanced mix of distributed infrastructure environments for all workloads
Energy optimization across the stack

Forward-thinking organizations implement an “integrated” operating model to extend their datacenter to the cloud instead of taking a big bang approach to migrate all-in.

Over 40% of European organizations rated infrastructure automation/analytics/security and cloud and datacenter interconnection services as the top digital infrastructure building blocks over next two years.
Workload placement determines workload-first strategy success

Factors determining workload placement across the infrastructure continuum

**IaaS**
- Security, sovereignty, and governance
- Management considerations
- Dependencies
- Performance, availability, latency
- Skills
- Speed and agility
- Scale

**PaaS**
- Cost

**SaaS**

**ON-PREMISES**
- Business-critical, regulated workloads
- IT infrastructure management
- Structured databases
- Homegrown apps

**PRIVATE CLOUD**
- File sharing and content management
- VDI
- Big Data analytics
- Archiving workloads
- Backup and DR
- Stateless apps
- Modern databases
- Cloud-native, composite apps
- Unstructured databases

**PUBLIC CLOUD**
- Skills shortages are the biggest challenge for migration.

**EDGE**
- IoT and predictive maintenance
- Edge analytics
- Smart grids
- Collaboration and email
- CRM
- SCM
- IoT and predictive maintenance
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On-prem and private IT account for the highest infrastructure spend.

By 2025, a 6x explosion in high-dependency workloads will see many firms using consistent architectural governance frameworks for infrastructure.

Speed, agility, scale, and experience are the top benefits of public cloud.

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Ultimate hybrid cloud resilience goal — application centricity, fluidity, and optimized operations

Organizations are building modern hybrid cloud architectures that enable them to deploy workloads on the most appropriate infrastructure in the hybrid environment.

1. Expectations from modern hybrid cloud operations:
   - App and data fluidity
   - Standardized operations and management
   - Unified experience on any infrastructure
   - Energy efficiency

2. Top 5 areas identified for immediate investment to optimize cloud operations:
   - 28% Security operations center
   - 21% Application and infrastructure performance management
   - 20% Continuous monitoring, remediation, and optimization tools
   - 19% Cloud cost assessment
   - 18% Cloud center of excellence for best practices and standards

3. Hybrid cloud infrastructure design outcome of workload-first strategy:
   - Distributed infrastructure design
   - Unified by autonomous, consistent management
   - Delivered by a software-driven control plane

4. Benefits:
   - Right cloud for the right workload
   - Build-once-run-anywhere
   - Energy optimized
   - Optimized operations
   - App mobility/fluency
   - Data management and security by design
How to get started: thinking about day 1, day 2, and beyond with cloud operational framework

Cloud operations — such as optimizing cloud resources, creating frameworks and blueprints for streamlined operations, adopting policy-driven governance and security guardrails for continuous compliance, and embedding processes to manage the ever-growing cloud functions — have become vital for success.

Hybrid Cloud Strategy and Operational Framework

Cloud operations (including FinOps)
- Facilitate business continuity, disaster recovery, and resilience
- Provide visibility and monitoring while enabling continuous optimization (observability)
- Enable automation, standardization, energy efficiency, and consistency
- Ensure cloud cost optimization

Cloud governance
- Identify cloud-related risks and set risk appetite
- Translate risks into policies, then implement processes to monitor
- Create security, sustainability, and data management policies and track adherence

Cloud adoption strategy
- Align hybrid and multicloud adoption to business outcomes and environment, social, and governance (ESG) strategies
- Build diverse cloud skills covering tech, governance, and operational needs
- Adopt workload-driven cloud adoption plan
Laser focus on operations is seen as critical for hybrid cloud success

A quarter of European organizations have “extensively” adopted cloud operations capabilities and improved governance early in the cloud journey.

Three-step journey to hybrid cloud success

- **Consistent management**
- **Improved cloud security, resilience, and performance**
- **Cloud cost optimization (FinOps framework for consumption and minimizing cloud waste)**
- **Reduced operating costs (with efficiency through maximum automation)**
- **Better user experience (with faster turnarounds, self-service, predictability, high availability)**
- **Energy optimization**

**VALUE EXPECTATIONS FROM FOCUSING ON HYBRID CLOUD OPERATIONS**

- **CONCRETE STEPS TO GET THERE**
  - Avoid ad hoc cloud migrations to escape these pitfalls
  - Widen their cloud considerations and breaking silos between days 0, 1, 2, and beyond
  - Manage the three-step journey as a continuum to bring together infrastructure, DevOps, platform engineering, and site reliability engineering teams
  - Add a varied mix of renewable and nuclear energy sources
Observability and turning data into action — delivering business value via better customer experience

**CHALLENGES**

- Differentiating the signals from the noise: 31%
- DevOps teams lack access to observability data: 30%
- Rigidity in integrating/supporting DevOps practices: 26%

**95%** find it difficult to observe their cloud-native ops.

**IDC TAKE:**

Observability and the ability to turn that data into action is a game-changer:

Applications need to be easy to use, secure, and deliver acceptable performance consistently to drive superior customer engagement. Use of unified IT observability to report on performance and give actionable recommendations is a necessity in the complex, dynamic, and interdependent application landscape.

**Killer combination:**

Observability, automation, and IT service desk turn operational insights into actionable direction. They help IT teams deliver SLAs and SLOs to restore business issues faster. It improves collaboration between development and operations by standardizing on a single source of truth and guides quick action by ITSM platforms. It can ensure higher business resilience and customer satisfaction.

Source: IDC EMEA, Accelerated App Delivery Survey, August 2021, Europe; n = 411
Learning from the leaders — how they excel in cloud adoption, operations, and changing mindset for hybrid cloud success

Hybrid cloud success is a team sport with a group of specialists collaborating as a cloud center of excellence (CCoE). Very mature organizations use modern tools and capabilities and quickly react to disruptive forces such as the current energy crisis.

**CCOE Dream Team**

- **SRE, head of IT ops, CFO, CISO, CRO, datacenter experts, platform engineers, DevOps, head of engineering**
- **LOB, cloud engineers, cloud architects, app owners, IT leader, CTO, CIO**
- **CEO, innovation head, CIO, CDO**
- **Board, IT and business stakeholders**

**HYBRID CLOUD ADOPTION STRATEGIES**

- Programmable infrastructure
- Intellig</p>
CCoE as the catalyst — extend years of on-prem operational excellence and management principles to the cloud

Organizations building cloud operations and FinOps excellence need a team that collaborates across the end-to-end hybrid cloud journey. In response, leading organizations are creating cloud centers of excellence. CCoEs and multicloud centers of excellence (MCCoEs) are developing frameworks and best practices for operations and governance.

52% of surveyed European organizations have adopted a CCoE.

What is a CCoE?
- A cross-functional cloud-focused team with C-suite representation
- Aims to create a balance between speed and stability, and between IT and the business
- Drives the following goals:

Effectively managing cloud costs
Why? 40% of European organizations estimate that between 10% and 25% of their public cloud spend is “waste.”

Improving performance, governance, and security
Why? 38% of European respondents said their top challenge in cloud operations is a lack of insights into their hybrid cloud environments.

Aligning business outcomes with cloud strategy
Only 26% of European respondents said cloud provides the foundation for new business models and new revenue streams.

Benefits of a CCoE? CloudOps, Governance, and FinOps

What are the main reasons for adopting a cloud center of excellence?

- Ensuring security: 31%
- Building performance: 29%
- Ensuring alignment between business and cloud strategy: 23%
- Defining and controlling authorization to access resources: 23%
- Managing cloud governance: 21%
- Monitoring resource usage to control costs: 19%
- Setting up community of practice: 19%
- Introducing DevOps methodology: 17%
- Designing blueprints: 17%
- Driving cultural change: 17%

Source: IDC European Multicloud Survey, September 2022, August 2021
Benefits cited by organizations investing in hybrid cloud operations and management platforms

Prioritizing cloud operations right at the beginning of cloud strategy helps address core challenges:

- Using the datacenter as a starting point to develop a hybrid cloud control strategy.
- Overcoming management complexities and getting consistent and seamless experience across cross-cloud environments.
- Continuous innovation and optimization.
- Near-zero-touch operations (or autonomous operations).
- Being in control of apps, data, and infrastructure, and managing it from the primary enterprise infrastructure.

IDC TAKE:

Benefits for developer, operations, and business teams:

- For European organizations, **overcoming technical debt, cost of infrastructure spend, rising cyber risks, and training and skills** are the top 4 concerns in infrastructure’s ability to support business goals.

- Cloud operations offer a **control point and self-service capability that empowers developers**.

- Autonomous operations help infrastructure operations teams **shift from reactive monitoring and ad hoc provisioning to intelligent operations with higher efficiency, cost optimization, and security compliance in a dynamic world**.

- Ability to **monitor and have reliable data on carbon footprint** to take action for improvements.
Getting on top of hybrid cloud adoption and operations has never been more important — prepare for upcoming trends

1. Digital spend is set to grow at six times the rate of the economy in 2023.

2. By 2025, a 6x explosion in high-dependency workloads will lead to 65% of G2000 firms using consistent architectural governance frameworks to ensure compliance reporting and auditing of their infrastructure.

3. By 2026, 90% of G2000 CIOs will use AIOps solutions to drive automated remediation and workload placement decisions that include cost and performance metrics and improving resilience and agility.

4. Organizations are developing infrastructure and operational and governance resilience to tackle the first potential recession during the as-a-service era.

Improve resilience by focusing on long-term hybrid cloud operational excellence and taking a workload-first approach to infrastructure.
The Need for Resilience

Fujitsu’s Global vision is to create a human-centric intelligent society, creating better customer experience and leading to the acceleration of profitable growth. Fujitsu envisions a world without complexity and risk when building datacenter and hybrid cloud infrastructures.

We strive to add value to our customers’ business and to make a positive difference in the lives of our people, our customers, and our partners. By investing in more customer-centric themes to improve customer experience (CX), Fujitsu is looking to stay relevant and to be a trusted advisor for our customers, providing a unique CX.

Why Hybrid Cloud?

In line with Fujitsu’s vision, the latest report from IDC clearly shows that hybrid and multicloud environments are a reality for 79% of organizations and underpin their ability to navigate through digital transformation and macroeconomic crises. European organizations’ focus is now on designing resilient, governed, and optimized hybrid clouds.

Being customer obsessed, we are simply responding to their requests. Fujitsu is uniquely positioned to help customers find the right cloud for the right workload because we can offer a choice of solutions on which to build a hybrid cloud. These solutions build on Fujitsu’s engineering heritage, where we have already pre-certified, pre-integrated, and prebuilt solutions to take out the complexity, cost, and risk for our customers. Enabling them to build resilient infrastructures and businesses.

Craig Parker, Head of Hybrid Cloud Europe, Fujitsu Platform Business
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