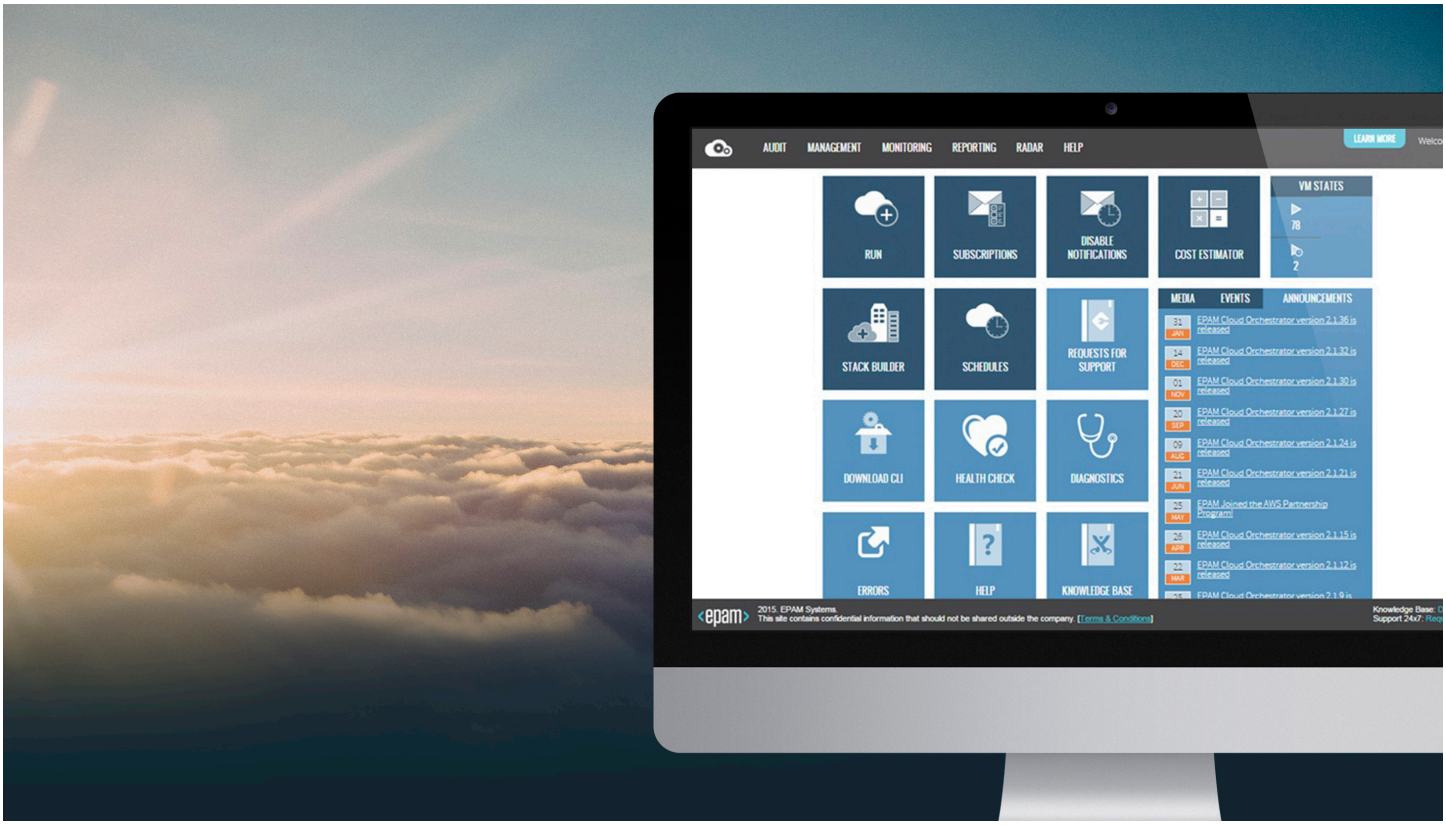

CASE STUDY

CREATING AN INTERNAL CLOUD: EPAM DEVELOPS A CUSTOM SOLUTION

Many enterprise businesses face the same problem: Rapid expansion that outpaces legacy systems, which become increasingly unable to support the digital experiences customers expect.

That's exactly the issue EPAM needed to solve in order to best serve its own enterprise-level clients. EPAM utilizes an award-winning global delivery platform to create digital experiences in 19 countries across North America, Europe and Asia.

In 2012, EPAM was running more than 500 concurrent customer projects, using an infrastructure of 3,000 servers in 25 global hosting locations. EPAM knew that revamping infrastructure delivery capabilities would improve cost and time to value for itself and its clients.

At the time, there was no product on the market to meet these needs at EPAM's scale. So EPAM did what it does best: Built a custom Cloud-based solution that integrated seamlessly with internal systems.

The result: A hybrid Cloud across multiple private platforms and a public Cloud addressing the following challenges:

- **Time-consuming infrastructure configuration and maintenance**

- **Inadequate continuous project delivery facilities**
- **Inconsistent visibility into infrastructure utilization and cost**
- **Insufficient staff of engineers to meet the explosive demand for Cloud-based services**
- **Ever increasing complexity with custom requirements in every project**

The EPAM Cloud Competency Center, the company's team of Cloud experts, developers, and IT engineers, successfully delivered and popularized the EPAM Private Cloud, equipped with the DevOps and "Infrastructure as Code" principles. Here's how.

THE CHALLENGE

TIME-CONSUMING INFRASTRUCTURE CONFIGURATION AND MAINTENANCE

EPAM's legacy infrastructure lacked the speed, reliability, and availability the company needed. To maintain their high standards for project delivery, company engineers needed an ability to provision environments within minutes and seamlessly integrate with public Cloud providers for smooth hybrid deployments.

THE SOLUTION

The internal Cloud drastically improved speed and ease of use. Self-service functionality allows users to manipulate cloud resources in mere seconds. Auto-configuration services and automation catalog simplify enable user to can create required application stacks based on a combination of pre-defined settings and reusable artifacts, as well as custom settings and scenarios that they create and save as needed.

To ensure that the EPAM Private Cloud continues to create value over time we developed Cloud Support system. It enables identifying and fixing most issues quickly and proactively.

THE CHALLENGE

INADEQUATE CONTINUOUS PROJECT DELIVERY FACILITIES

EPAM aims to provide its customers with the most up-to-date facilities and services. Assuring continuous delivery is one of the most important characteristics of modern product development. This was the challenge EPAM Private Cloud had to face in order to provide modern and competitive service to its users.

THE SOLUTION

EPAM Private Cloud provides developers with all the necessary tools to establish continuous delivery process. It supports Infrastructure as a Code, Continuous Integration and Deployment Automation facilities allowing to create application stacks of any complexity quickly and easily and removing them as soon as they finish their tasks. For project needs, the developers can automate provisioning of multiple identical environments that could be used for different purpose (for example, testing and demonstration).

THE CHALLENGE

INCONSISTENT VISIBILITY INTO INFRASTRUCTURE UTILIZATION AND COST

In order to optimize resource usage, EPAM needed to continuously monitor, optimize and release unused cloud services and underlying infrastructure. Existing systems did not provide sufficient real-time infrastructure insights, hampering the company's ability to control and fine-tune infrastructure spending.

Additionally, EPAM required to provide internal account teams and external customers with the detailed information, monitoring and alerting capabilities on project expenses and resources usage statistics in real time.

THE SOLUTION

A real time data aggregation and monitoring system keeps track of Cloud resources' usage and cost across all supported cloud providers and all the layers and elements of consumed cloud services. Usage monitoring is performed via convenient omni-device Web Console.

The modernized infrastructure offers cost management and control, enabling real-time Cloud cost tracking, self-service quota management, reporting and chargeback to help increase transparency and eliminate wastefulness.

Furthermore, EPAM Private Cloud's comprehensive audit functionality helps ensure compliance with EPAM's process and security requirements.

THE CHALLENGE

EVER INCREASING COMPLEXITY WITH CUSTOM REQUIREMENTS IN EVERY PROJECT

EPAM concurrently runs over 1,000 projects across large variety of platforms and application technologies. With manually managed infrastructure, the overhead and

complexity is staggering.

THE SOLUTION

EPAM Private Cloud users work with any resources, using a single tool set. The system automatically analyses user requirements and the current state and capabilities of all supported cloud service providers and allocates appropriate resources accordingly.

Complexity is further reduced by providing Auto-configuration library. This library contains hundreds of automatically deployable application stacks. EPAM Private Cloud provides open Chef, Cloudify and Docker facilities to further extend available stacks with custom deployment routines. This enables project teams to quickly start from a proven application stack and extend it as necessary with project specific configuration.

EPAM Private Cloud team continuously reviews popular and/or emerging application stacks and extends the library with the automation routines to deploy these stacks on all supported cloud providers. In case where a particular stack is very popular it is converted to a full-fledged service to enable further simplified consumption of these services.

THE CHALLENGE

INSUFFICIENT STAFF TO MEET THE EXPLOSIVE DEMAND FOR CLOUD-BASED SERVICES

Although EPAM already employed hundreds of highly trained cloud engineers, client demand for Cloud services threatened to outstrip the company's resources. In order to leverage the benefits of the Cloud for its clients and advance best engineering practices, large numbers of EPAM employees had to be trained and educated on Cloud computing practices and technologies.

THE SOLUTION

EPAM created a dedicated training program and an internal Cloud community. Within 8 months, more than 3,000 EPAM engineers were successfully trained in Cloud practices, like Infrastructure as Code and deployment automation, and became active practitioners in EPAM Private Cloud and other Cloud platforms.

THE RESULTS

- **EPAM Cloud Orchestrator advances best engineering practices, provides transparent public Cloud federation, and enables full lifecycle for Cloud-based, continuous solution delivery, management, and support**
- **Over 9,000 engineers in over 1,000 projects leverage EPAM Private**

Cloud to decrease time to value for our clients.

- **Single pane of glass across all Cloud providers enables real-time operational insight, cost management, reporting and alerting, spend management and comprehensive audit.**

Thanks to the new Cloud infrastructure, EPAM is able to provide its customers with everything from architecture, development and testing, to Cloud hosting and application maintenance and support – the essential suite of services for a leading software product development provider.

41 University Drive, Suite 202, Newtown, PA 18940 USA
P: +1-267-759-9000 | F: +1-267-759-8989