Case study

EPAM Systems delivers a hybrid cloud service for developers

HP Cloud Service Automation and HP Operations Orchestration deliver a unique solution

Industry
IT Professional Services

Objective
Introduce a cloud model of service provisioning to minimise the non-production resource time of software engineers and optimise infrastructure resource utilisation

Approach
Create a unified platform to provide cloud services

IT matters
- Develop key expertise in cloud services domain
- Unify service delivery model
- Optimise service costs

Business matters
- Automate software development lifecycle
- Provide EPAM Systems with key competitive advantages
- Increases the IT infrastructure Return on Investment (ROI)

> **"The new cloud platform makes our IT infrastructure capable of supporting a Continuous Delivery model."**
>
> – Ivan Tabaravets, head of IT, EPAM Systems CIS

Unique EPAM Orchestrator software enables complete automation of IT infrastructure resource delivery

A new cloud environment has been developed by EPAM Systems using HP software tools. It has helped to decrease labour expenditure for the deployment of complex technology development and test environments. Resources are managed in a self-service manner by means of a single set of instruments. An additional tool set, available in EPAM Orchestrator, helps to include IT infrastructure operations in the program code. This enables the creation of cloud-ready applications.

Challenge

About EPAM Systems

Established in 1993, EPAM Systems, Inc. (NYSE: EPAM), provides complex software engineering solutions through its award-winning Central and Eastern European service delivery platform. Headquartered in the United States, EPAM employs approximately 8,900 IT professionals and serves clients worldwide from its locations in the United States, Canada, UK, Switzerland, Germany, Sweden, Netherlands, Belarus, Hungary, Russia, Ukraine, Kazakhstan, and Poland.

EPAM is ranked #6 on the 2013 Forbes 'America's 25 Fastest-Growing Tech Companies' list and is recognised among the leaders in software product development services by Forrester and Zinnov analysts. The company is also included in the top 30 outsourcing service providers in IAOP's 'The 2013 Global Outsourcing 100' list.

Cloud technologies are one of the most promising trends in IT. Companies around the world are showing interest in implementing cloud services and to have the opportunity of developing similar solutions for its customers, EPAM Systems needed to create its own cloud environment. In addition, cloud was to provide the company with a number of significant benefits such as the ability to optimise its IT infrastructure resource delivery, and reduce the efforts to maintain several thousands of Virtual Machines (VMs), running development and test environments.

The IT department was tasked with building a hybrid cloud to deliver internal IT infrastructure resources (servers, storage systems, data networks, etc), and also to introduce scale-out capability to external public clouds, such as Amazon.

"By the start of 2012 the company infrastructure was cloud-ready; all the server resources were virtualised. But the methods of providing these resources remained traditional and required manual management. To make full use of cloud technologies, it was necessary to automate the provision of resources," says Andrey Kureichyk, IT director, EPAM Systems.

An automated resource provision system would help:

- Speed-up the software development cycle, reducing the time spent on direct interaction with IT services and on environment preparation, deployment and testing activities

- Make more economical use of resources, allocating them for specific tasks only, rather than reserving them for long-project terms, 'ironing out' peaks and troughs by actively using the server farm capacity at night

- Provide a unified service delivery model, regardless of the source and nature of involved IT infrastructure resources

- Automate service operations through Application Programming Interface (API)

- Build key expertise in the development of cloud solutions to stay ahead of competitors
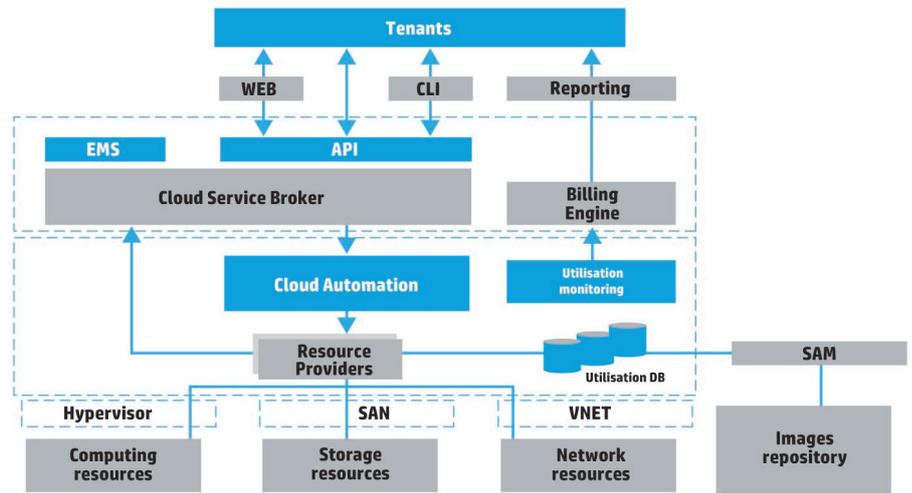
Solution

Platform selection

EPAM Systems announced an open tender for selection of the automation cloud platform. VMware, Microsoft® and HP responded.

"None of the vendors at that time could offer us a complete solution fitting all our functional requirements. However, the HP platform allowed us to integrate our heterogeneous technology stack," says Ivan Tabaravets, head of IT, EPAM Systems CIS. "In addition, HP specialists demonstrated exceptional technical competence. Only with them did we have a full sense of co-operation. They inspired confidence in the ultimate success of the project and this belief was reinforced by our positive collaboration history over many years".

"When your business goals call for new technology paradigms, your people have a passion for innovation and you have partners you can rely on, then your cloud future quickly becomes a reality. You can realise tremendous advantages in terms of efficiency, effectiveness and quality," says Artur Gioev, technical director, HP Software Russia and CIS.

Solution architecture

The resulting solution design can be described as a three-level model. On the top level, there is HP Cloud Service Automation (CSA), EPAM Orchestrator system and billing subsystem. The middle level contains HP Operations Orchestration (OO). These two levels form the core of the cloud platform. On the lower level, there are numerous resource providers including VMware vCenter, Microsoft SCVMM, Amazon Web Services.

Solution architecture
HP Operations Orchestration contains connectors to various resource providers and is capable of executing the flows that automate operations across the cloud.

This creates an abstraction layer that encapsulates the technical specifics of particular resource providers. The service broker composes service items, subscriptions and lifecycle actions of the available set of resources and flows and presents them via GUI, CLI and API to its tenants.

Implementation Features
Less than five months were given for the project implementation. Additional difficulties arose because of the geographical distribution of the EPAM Systems team with specialists responsible for supporting the IT infrastructure located in Minsk, and developers in Kharkiv.

In just a month major issues were resolved, allowing the project team to complement the cloud platform with the required functionality:

- The toolset supporting Infrastructure-as-Code model was developed on CSA API and Amazon Web Services API basis
- A mechanism of guaranteed resource provision was implemented
- A set of connectors integrating HP CSA and HP OO with Microsoft SCCM, Microsoft SCVMM and Amazon Web Services was developed and implemented
- Metering subsystem and billing subsystem were developed and implemented

In parallel, EPAM Systems project teams mastered the new automated system. For this purpose a training course and a set of test jobs were developed.

The cloud platform was deployed in the Minsk-based data centre. At the beginning, only 20 projects were transferred to the new system. One month later the second data centre in Budapest was connected, and then the majority of the company's 2,000 projects were transferred to the cloud.

"Technologically, migration to the cloud does not pose any difficulties. The main difficulty lies in the need to restructure the thinking. The developers have to change their approach to using the infrastructure, reassess the available opportunities and learn to extract maximum benefit from them," explains Kureichyk.

Customer solution at a glance

Application
EPAM Orchestrator

Software
- HP Cloud Service Automation
- HP Operations Orchestration
- HP Database Middleware Automation
- HP Matrix Operating Environment

Benefits

Software development lifecycle automation

Previously, requests for the provision of virtualised development and testing environments were processed within eight to 16 working hours. For long-term projects not requiring frequent changes, such delays are acceptable. However, for highly intensive projects the use of cloud technologies ensures tremendous advantages. EPAM Systems simultaneously implements about 750 projects, so the cumulative gain is significant.

"The new cloud platform makes our IT infrastructure capable of supporting a Continuous Delivery model. Our competitors waste a lot of time to accumulate the requirements before a new release. They spend a considerable amount of production personnel effort on the configuration of their development and testing environments. Whilst we are able to produce releases in a matter of days thanks to the deep automation of our processes," commented Tabaravets.

Unified Service Consumption Model

Consumers can work with any resources, using a single tool set. The system automatically analyses their requirements and the current state of the infrastructure and allocates available resources (internal or external provider).

"We chose HP CSA and supplemented it with unique instruments that implement the infrastructure-as-code concept. This solution is unique in the Russian market. According to preliminary estimates, the project investments are fully repaid within a year, and the potential financial benefits can simply not be overstated".

— Andrey Kureichyk, IT director, EPAM Systems

"We chose HP CSA and supplemented it with Standard service-oriented interfaces (API, CLI and WEB) help to hide the technological complexities of various infrastructure systems. An additional tool set, available in EPAM Orchestrator, helps to include IT infrastructure operations in the program code. This enables the creation of cloud-ready applications, unique instruments that implement the infrastructure-as-code concept. This solution is unique in Russia. Presently, it is available for internal customers only. However, we estimate that very soon, as customers will begin to take an active interest in such services, we can offer them a complete public cloud solution. Customers from Kazakhstan and Belarus are already showing an active interest in our expertise," says Kureichyk.

Quick ROI

EPAM Systems is growing fast, the number of employees has steadily increased by between 30 and 40 per cent per year, and the infrastructure must comply with these requirements. The new cloud environment and the automated service delivery system helped to decrease labour expenditure. Prior to project implementation, eight support team members were involved in the processing of requests, as well as several system administrators. Today, most of these tasks are dealt with in a self-service manner.

Previously, more than 20 employees maintained the process of compiling codes and assembly of releases and they barely had time to cover one third of the Continuous Delivery-based projects. Now, thanks to automation, the current demand for these services can be met without increasing the service unit headcount.

"One of the key success factors was the direct involvement of the company's top managers. They clearly formulated the project goals and objectives. According to preliminary estimates, all project costs are fully repaid within a year, and the potential financial benefits can simply not be overstated," concludes Kureichyk.

Learn more at
hpcloud.com