CASE STUDY

MIRANTIS

Asian Telecom Operator Disrupts Market, Driving Digital Transformation throughout the Nation

Fast Growing Telecom Operator Runs OpenStack at Massive Scale

The Business

A major telecommunications operator in a large Asian country has more than 100 million subscribers and more than 75% of mobile data traffic in its home country. The operator offers fixed and wireless broadband voice and data, Wi-Fi hotspots, and a growing ecosystem of rich digital services, including applications for e-commerce, media, communications, payment processing, healthcare and more. It operates 200,000 radio towers connected with more than 250,000 km of fiber optic cables throughout the country and has one of the world's longest 100 Gbps submarine cable system, stretching from Europe to Asia.

Challenges

When the parent company began heavily investing in the operator to become a telecommunications leader in their country, executives had a vision of leading a national digital revolution. Specifically, they wanted to shape the country's future by providing end-to-end digital solutions for businesses, institutions and households and seamlessly bridging the rural-urban divide. The operator had to contend with more established players in the market, which had been offering mobile services in the country for decades. Because the operator wanted to provide an offering that average citizens, even in rural villages, could afford, there would be very low average revenue per user, and the company needed to minimize operational costs to achieve profitability.

Being a new player in the telecommunications market, the operator was not hampered by legacy technology investments and wanted to start off using the latest best practices and innovations. To accelerate time to market for a new portfolio of digital services consumed at massive scale, the company decided to deploy an OpenStack private cloud for their software teams. The company was adopting a microservices-based culture and organizational structure and wanted to enable each software team to independently develop, deploy and scale their own offerings, instead of having to wait for a central IT team to provision or scale resources.

To accomplish this, the operator wanted to partner with an OpenStack vendor who had proven success with global telecommunications leaders and the expertise to quickly scale cloud resources for each app to support more than 100 million subscribers.

COMPANY

- Fixed and wireless broadband communications provider
- Asia HQ
- 10,000+ employees

CHALLENGE

- Enable rapid deployment and scaling of digital services to more than 100 million customers
- Provide a variety of self-service provisioning capabilities to independent software teams
- Minimize cost of operations to offset low average revenue per user (ARPU)

SOLUTION

- Scalable, private cloud based on OpenStack deployed on thousands of physical servers
- Mirantis Cloud Platform model-driven architecture with automated deployments, updates and upgrades
- Mirantis cloud design, support and training services, with operations transferred to operator's internal cloud team

RESULTS

- Fast technology service adoption with 100 million customers in less than 6 months
- Ability to deploy 100-node cloud in only 24 hours after hardware preparation is complete
- Self-service portal for independent software teams enables rapid provisioning of VM, container or baremetal compute resources

"The model-driven architecture that Mirantis has come up with has helped us save a lot of time and effort. We define our inventory in code and the inventory gets deployed automatically using CI/CD."

— Head of Engineering and Operations, Asian Telecom Operator

Solution

The operator decided to evaluate Mirantis, based on its successful deployment of the world's largest OpenStack cloud for one of the world's biggest telecommunications companies, as well as Mirantis' leadership within the OpenStack community as one of its top contributors of code. They commenced with advisory services, OpenStack training, and a proof-of-concept (PoC) deployment with dozens of nodes.

After successfully completing the PoC, the two companies set forth to build up the operator's cloud infrastructure, first focusing on establishing a robust cloud foundation that could help drive innovation at the operator and provide key capabilities. By 2015, the operator began scaling its platform, introducing additional clouds in other regions, adding world-class capabilities, and enabling key products and initiatives.

Initial deployments were based on Mirantis OpenStack with Juniper Contrail and Ceph storage, and the company has begun transitioning to Mirantis Cloud Platform (MCP), a flexible infrastructure platform that automates cloud updates and upgrades by following principles of Infrastructure as Code. Mirantis provided architectural and design services; deployment, upgrade, integration, workload onboarding and other engineering services; training and 24x7 support. By the time the operator was ready to launch, the operator had several clouds in production across multiple cities, spanning hundreds of nodes.

Results

After its public launch, the operator attracted more than 10 million subscribers in its first month, one of the fastest ramp-ups by any mobile operator in the world. The company enrolled 100 million subscribers in less than 6 months. Today, its users make 2 billion minutes of video and audio calls daily.

Launching Digital Services at Massive Scale

"When we go live with a digital service, we go live with more than 100 million users. That's the challenge," said the Head of Engineering and Operations at the operator. The company currently offers anyone using its SIM card a full suite of digital services at no cost, including applications for TV, movies, music, magazines, payments, messaging, VoIP, file storage, healthcare, and more.

To prepare for rapid consumption by millions of customers, the operator and Mirantis worked together to minimize the time needed to deploy a new production cloud at scale. "We used to deploy a new cloud of 100 nodes in 55 days, including racking, stacking, networking, etc. Now with Mirantis' help, once networking is done, we can deploy a new 100-node cloud in only 24 hours, which is phenomenal," the Head of Engineering and Operations said.

Deploy cloud foundation nodes	Deploy new compute nodes/rack	Deploy new storage nodes/rack
19 hours	2 hours	3 hours

Current Time to Deploy a 100-Node Cloud in Production
*After hardware preparation is complete

MCP features the DriveTrain lifecycle management system, which automates deployment, updates and upgrades of clouds, reducing manual work and errors. "The model-driven architecture that Mirantis has come up with has helped us save a lot of time and effort," the Head of Engineering and Operations said. "We define our inventory in code and the inventory gets deployed automatically using CI/CD." MCP also streamlines cloud management with its StackLight Operations Support System (OSS), which provides proactive monitoring of infrastructure and application workloads.

In the same year as the operator's public launch, Mirantis began transitioning cloud operations to the operator's internal cloud team, who are now able to manage cloud deployment and operations on their own, leveraging DriveTrain and StackLight. Mirantis continues to assist the operator with architecture, other consulting services, and 24x7 enterprise support.

The operator currently operates 4,000 servers across four datacenters, and expects to soon reach 100,000 cores. Further expansion is already planned, and when the operator reaches full scale, the operator expects to have more than 10 datacenters across the country, with tens of thousands of servers and roughly 1 million cores.

The operator's software teams today provision their own cloud resources, enabling them to rapidly deploy and scale their own offerings as needed. With MCP, developers have the flexibility to deploy the type of cloud resources they prefer, (e.g., VMs, containers or baremetal compute).

"We don't define how the microservices teams work, and that's what you want in your organization. You don't want to define standards for your teams, you want to let them innovate and figure out their own," the Head of Engineering and Operations said. "Some teams want baremetal, some teams want Kubernetes, some teams want to use typical monolithic environments."

Transforming Society

By offering free voice calls and text messaging throughout the country, unlimited data access at affordable rates, premium content and applications at no cost, and free feature phones to all citizens, the operator shook up the nation's telecom industry, forcing incumbent operators to slash prices and causing consolidation in the market. More importantly, the operator has also helped to disrupt the country's society, by making communications and data more accessible and bridging the urban-rural digital divide.

"We have transformed culture in our country. Our citizens were data starved a year ago, because data was too expensive for most people to afford," the Head of Engineering and Operations said. By offering all citizens free access to data, the operator is helping to expand their world view. This is especially true through the consumption of TV, a luxury that many citizens do not have in their homes. "Many citizens couldn't afford TV and didn't really understand the world outside. Now with our TV app most of our over 100 million subscribers consume TV on their mobile phone," the Head of Engineering and Operations said.

After the operator's launch, the country suddenly transformed from a low consumer of mobile data to a world leader. "Today we rank in the top five in mobile data usage, and very soon we will also be in the top five for mobile data penetration," said the VP Cloud at the telecom operator. "We have quickly overcome many Western countries in mobile data consumption, whereas a year ago we were lagging." With such achievements, the operator has become an indispensable leader in the country's digital revolution, as it aspires to expand its influence in the world digital economy.

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