



IDC CUSTOMER SPOTLIGHT

Enabling Agile IT: Modernizing Datacenters with Software-Defined Private Cloud Solutions

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Introduction

eSilicon is a fabless semiconductor company that designs and manufactures digital CMOS and FinFET ASICs. In addition, eSilicon designs a broad range of semiconductor IP, including customizable memories and high-performance I/O (e.g., SerDes). Started in 2000, eSilicon has been operating primarily as a full-service fabless chip supplier and has designed and manufactured about 300 chips utilizing various semiconductor fabrication processes.

In 2014, eSilicon created a new customer strategy to focus on tier 1 networking, computing, and artificial intelligence companies. The strategy to target tier 1 companies required eSilicon to rely on leading-edge IT technologies to support the capacity needed to design advanced tier 1 chips. eSilicon's existing IT environment was deemed insufficient to handle the desired compute and storage capacity needed in a timely manner because server configuration was manual and had limited capacity.

While compute power capacity was a challenge, eSilicon wanted to meet capacity needs without building out additional datacenters and expanding capex budgets. To overcome this challenge, eSilicon relied on automated and orchestrated deployment using a software-defined private cloud solution and was able to shift from a capex model to an opex model. In addition, eSilicon's internal IT team was small and senior staff was only in the United States. The company needed a 24 x 7 operation with a multiregional base to support tier 1 customer designs and therefore needed additional resources. eSilicon decided to consolidate its existing datacenters and adopt a datacenter-as-a-service model, which gave the company the resources needed based on access to compute power and storage with 24 x 7 operation. Furthermore, manual server configuration was switched to automated provisioning using Cisco's UCS solutions.

Solution Snapshot

Organization: eSilicon

Operational challenge: Acquire flexible compute and storage capacity to cater to tier 1 customers while keeping capex in check

Solution: Consolidation of datacenters and adoption of datacenter-as-a-service consumption model utilizing software-defined private cloud solutions

Project duration: 5 years

Project cost: \$27.5 million

Benefits: Ability to cater to demands of tier 1 customers, 30% lower TCO, adoption of agile IT solutions that allow flexible capacity and storage on demand as a service, reduced time to market through automated provisioning

Implementation

eSilicon's shift in go-to-market strategy to target tier 1 customers triggered a massive change in the company's existing datacenter solutions to enable support for the new customer strategy. eSilicon overhauled its datacenter solutions across multiple spectrums and did so in collaboration with Wipro.

- **Flexible compute power and storage capacity.** To handle the desired and on-demand flexibility in compute power and storage capacity, eSilicon moved from manual service-level agreements (SLAs) to an orchestration layer that can automatically provision and adopt software-defined private cloud services supported by Cisco UCS.
- **Datacenter as a service.** To adopt leading-edge technologies without putting an added burden on IT budgets, eSilicon needed to modernize its existing datacenters while keeping the investment manageable. To achieve this goal, eSilicon, with Wipro's help, consolidated its existing datacenters and moved to a datacenter-as-a-service solution so that the desired compute and storage needs can be accessed with a pay-per-usage model.
- **24 x 7 operation and geographic reach.** To be able to provide 24 x 7 support for its global employee base serving tier 1 customers and multiple regions, eSilicon needed a resource pool that is geographically spread and can scale with short notice. Its customers require support and access to a knowledge base 24 x 7. To tackle this customer need, eSilicon utilized Wipro for staff augmentation. Internal IT staff, except for an architect and a manager, were rebadged to be part of the WiproProject Approach.

In November 2015, eSilicon moved operations to Wipro. The operations team included eSilicon resources that were rebadged to become part of Wipro, plus additional Wipro team members. In addition to taking on the day-to-day operations of existing datacenters and IT support, Wipro was assigned to create and design the new datacenter. The implementation team included one program manager onsite and 20–30 people at a given time on the implementation side. Two other program managers were at eSilicon locally.

In addition, Wipro has lead architects for various aspects of the solutions, such as security and networking. The initial datacenter deployment was completed in June 2016, followed by application workload migration utilizing IBM Aspera data transfer software while staying live. Data migration and consolidation of the two eSilicon legacy datacenters to software-defined private cloud datacenters were completed in December 2016.

Challenges

While the datacenter consolidation and modernization project has been successful for eSilicon, the project did face some challenges.

- Any new customer project brings massive changes in data consumption for individual customer projects. Dealing with changes in data consumption during migration to the new datacenter was a tough task to handle because of data management and integrity. eSilicon successfully addressed this challenge by utilizing IBM Aspera and by redesigning its process to keep customer data changes to a minimum while the mass data migration to the new system was taking place.
- Resource turnover was another challenge, particularly when one of the lead architects left the project and the knowledge transfer was not properly documented. The pitfall was rectified by communicating the changes of any impact that staff turnover may put on the customer, so Wipro was prepared for any further disruptions. In addition, biweekly meetings between Wipro and eSilicon were set up for frequent assessment of critical project elements such as project performance, resource availability, and compute capacity.

Benefits

eSilicon's datacenter modernization and consolidation project is an ongoing initiative, but it has already delivered a number of business- and technology-centric benefits for eSilicon:

- **Cost.** 30% lower TCO
- **Time to market.** Provisioning time down from 3–4 months to less than a month due to automated flex capacity provisioning, resulting in improved time to market
- **Flex capacity.** Compute capacity of 30% was initially provisioned for addressing burst needs via flex and subsequently increased to 50%
- **Access to additional flex capacity.** Additional flex capacity using hybrid cloud–based solutions such as Google Cloud
- **Tier 1 customer wins.** Ability to win tier 1 customers partially because of flex compute capability, realizing major positive impact on revenue as well as go-to-market messaging with customers
- **Software-defined everything.** Ability to automate the orchestration of flexible loads based on project needs utilizing software-defined cloud solutions, allowing business functions to run jobs without waiting months to attain the desired compute capability

Methodology

The project and company information contained in this document was obtained from multiple sources, including information supplied by Wipro and questions posed by IDC directly to eSilicon.

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