

# Porting High Performance Computing Applications to the Cloud

*Software Architecture Design and Cloud Migration*

## INDUSTRY

EDA (Electronic Design Automation)

## DURATION

4 months

## HEADQUARTERS

San Francisco Bay Area

## SERVICES

CTO Consulting, Delivery Acceleration, Architecture Design, Cloud Migration

## BACKGROUND

The CEO of the market leading, multi-billion dollar, EDA (Electronic Design Automation) company had launched a strategic initiative to offer the company's products on the cloud, with a mission to generate at least 20% of its revenues from cloud services within five years.

With the world's largest chip and electronic products companies as well as chip foundries as its customers, our client needed to ensure a high-level of security to protect the intellectual property of the chip designs implemented via their EDA tools due to the billions of dollars of revenues that these chip generate. Up until recently, our client's customers have demanded that the EDA software be delivered on-premise. However, two important factors have recently combined to change these requirements: first, cloud vendors have demonstrated that they can provide compute power as securely, and possibly more so, than any individual company. Second, cloud computing has demonstrated that it is much better suited to High-Performance Computing (HPC) than on-premise data centers.

Our client had identified a first product to migrate to the cloud and started the effort with internal resources augmented by consultants. However, milestones were being missed, and it became clear to the CIO that this team sorely lacked the necessary experience developing cloud-native products. He needed a team with expertise in developing and utilizing software architecture adapted to SaaS, extensive familiarity with the available cloud technologies and tools (including DevOps). In addition, a highly technical product lead was needed to ingest and translate the needs and requirements from their product management and R&D teams (the product experts) as well as from selected client customers. This product lead would also need to evangelize inside of our client's organization the new capabilities that this cloud implementation would bring to the product to ensure that the R&D team takes full advantage of these new capabilities inside the product.

## GOALS

SVSG was brought in to help the CIO team to bring the project back on track and to accomplish three key objectives:

1. Release an alpha version of the product to our client's largest customers whom had been clamoring for this capability. This needed accomplished within three months.
2. Identify and develop new capabilities that the cloud offers, compared to on-premise delivery (e.g. "immediate" compute resource provisioning, "infinite" compute power provisioning)
3. Educate their internal product teams about the benefits of these new capabilities, so that they could design future products with these capabilities in mind and begin marketing these capabilities to their current clients to ensure retention and future growth.

## PROCESS

Within a week of initial contact, SVSG engagement manager Bernard Fraenkel selected and engaged SVSG CTOs Geeta Chauhan and Gil Edelman to rapidly deliver the alpha and pre-beta releases working in close partnership with the business groups across the organization. To understand and define hard technical requirements as well as how chip designers use the product on a day to day basis the SVSG team met extensively with our client's team members across all constituencies involved: EDA experts, product managers, IT organization, and sales engineers.

With the requirements articulated and prioritized, SVSG Product Designer Alex Henry was tapped to design a user experience (UX) that gave prominence to the new features of the product, while staying compatible with the traditional command-line driven use of the tools. Geeta and Gil then selected a team of three developers and one QA from SVSG's internal engineering ranks to execute and deliver the project within the target twelve week time frame.

Following an agile development methodology, SVSG delivered shippable code every two weeks. While Gil led the implementation of the next set of user stories, Geeta took on the product lead role, previewing the latest release with product managers, sales engineers and R&D leaders to solicit feedback on the features as implemented, and prioritize new ideas that often sprung up from these demos. Geeta also assisted Sales Engineers in the preparation of bespoke customer demos.

## ABOUT SVSG

With over 100 years of combined Silicon Valley CTO experience, SVSG provides thought leadership in emerging technology trends, guidance on incorporating innovation into the enterprise and crucial introductions to build strategic partners. Whether sizing up a potential acquisition, developing a go-to-market strategy or building out custom technologies, our CTOs work to bring clients to the forefront of innovation.

The CIO team further utilized SVSG's expertise to secure CEO funding for full scale development and to present the business case to port more products to the cloud. With that in place, SVSG defined the beta roll-out plan for market launch, and handed off, via a series of knowledge-transfer sessions, to the client's internal development team for final release.

## RESULTS

- Rescued a project in distress and delivered alpha and early beta product in time and on budget
- Implemented several new capabilities in the cloud-based product that were not available in the on-premise version
- Instituted best practices for the design of cloud-based products to enable our client's internal organization to utilize them for future projects
- Provided strategic technical marketing on the business value of SaaS based products
- Partnered with the CIO team to make the business case for expanding the business to SaaS

## RELEVANT SVSG PUBLICATIONS

- [Developing Products at Silicon Valley Speed](#)
- [Technical Debt White Paper](#)
- [Case Studies](#)

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