



Silicon Valley Software Group®

Technology Modernization Service Description

Re-architecting the technology stack is a predictable and somewhat common event in the life of a growing company – the technology and the data center that once supported 10,000 users aren't designed to handle 1 Million. Although scaling the number of users is often a catalyst for re-architecture, scale is not the only impetus to force re-architecture. Multi-tenancy support, redesigning the data model to support the evolution of the product, and migrating to a Software Oriented Architecture (SOA), micro-services, or a cloud compute model can require re-architecture. In general, the technology stack will typically require a fundamental refactoring every 2-5 years, as the company focus evolves from finding product-market-fit, to expanding the product to satisfy the addressable market, to increasing robustness, and finally to hyper-scaling.

More challenging situations arise when the technology stack has not been updated for more than 3-5 years: the main frameworks used in the product are two (or more) major versions behind the actively developed version, and upgrades are likely to no longer backward compatible. With outdated code, the organization is forced to either refactor or rewrite the code entirely.

In extreme cases, bad code hygiene or “spaghetti code”) may require the complete recreation of product as markets have evolved and new technologies have emerged that render the legacy stack insufficient. This requires the reduction, or elimination, of the existing product, in order to focus on developing a new product that offers essentially the same benefits to the same market, while being implemented with a fully modern technology stack.

The growth of the company and the modernization of its technology requires a regular upgrade in the methodologies and tools employed by its Engineering teams (particularly QA), an upgrade of the data center infrastructure and DevOps tools, and a never ending pursuit of new skills and knowledge.

The SVSG Process

Often the biggest challenge in technology modernization projects is reaching clarity on business objectives, in order to provide the proper references for trade-offs. Some of the most difficult decisions

involve choosing what capabilities the product will no longer support, in order to remove constraints that overwhelm the creation new product development.

The SVSG Process:

- Articulate the business drivers for the technology modernization
- Review the existing code and infrastructure – Identify gaps with the business objectives
- Make refactor, rewrite, or recreate decisions for major components and whole product
 - Articulate trade-offs in business terms: what is the cost and opportunity cost, of maintaining non-major features versus increasing complexity, time and effort to build new code
- Identify major upgrades required for engineering tools, including DevOps and QA, methodologies, processes, data center infrastructure, etc.
- Create a phased implementation plan
 - New tools, methodologies and data center infrastructure required
 - Scope effort in resources, time and budget
- Secure approval from executive team
- Optionally, SVSG will partner with the client’s engineering team to execute the recommended plan

Our Deliverables

Upon conclusion of the project, SVSG delivers:

- Component by component assessment of the code with recommendations to refactor, rewrite, or recreate each component, as well as the whole product
- Long term reference architecture:
 - Technology stack
 - APIs, main entities schema
 - Data center system architecture
 - Tool chain for development, QA, DevOps and data center
- Quarterly high-level release plan based on business objectives
- New skills required for the team
- Recommended upgraded tools and methodology
- Optional delivery of the release plan, in cooperation, with the client’s engineering team

SVSG Expertise

SVSG is comprised of Silicon Valley CTOs who have led teams that have created unique products and technologies as well as participated in the acquisition of technology companies. This experience is invaluable when assessing a company’s core technology, its effectiveness at bringing new products to market, and its ability to grow revenues in a highly competitive environment. SVSG CTOs have conducted numerous evaluations on technology organizations, and leverage both formal tools and our creativity to tease out the differentiated strengths and weaknesses of technology teams.