

# Top 10 Mistakes Architects Make When Building a Force.com Application

By **Ketan Khandkar**  
Principal  
Navatar Group

Force.com is changing the way software is written and deployed. Companies are realizing the enormous advantages of deploying business applications in very short timeframes without having to invest in hardware, software, and IT infrastructure – let alone the number of people it can take to maintain On-Premise solutions. On average, these organizations say they realize 49% ROI within only 10 months. Thanks to salesforce.com, building and deploying a SaaS application has never been easier.

However, to realize the ROI, it is essential to understand the SaaS model and the technologies behind it. Force.com is a paradigm shift and, as such, requires a very different way of architecting, designing and building your application, to experience success. You must understand these differences upfront and avoid the pitfalls. Here are the top 10 architecture mistakes to avoid during critical stages of initial decision-making, designing and developing your application.

### Do not make wrong choices that can increase scope, timeline and cost

#### ✘ Mistake #1 – Not leveraging the Force.com UI to reduce development time

Visualforce allows you to design any conceivable user interface. Most designers tend to create complicated screens by replicating the look and feel of an existing application or idea. Custom screens have their advantages but can be time consuming and expensive to develop as opposed to using the Force.com UI. Be sure to understand the trade-offs, based on the capabilities and workflows pre-built into the Force.com UI before making the choice to go custom.

#### ✘ Mistake #2 - Writing Custom Code instead of using Force.com configuration

Apex is a very powerful feature of Force.com. It provides the ability to write custom code for any kind of automation and functionality desired. However, like any other language, custom code will increase your total development/testing costs and timeframes. Spend some time in understanding Force.com tools such as alerts, workflows, validations, formula fields that can provide you powerful alternatives to custom code. It will save you precious hours and dollars.

#### ✘ Mistake #3 – Jumping into development before building a Force.com prototype

As discussed earlier, the cost and timeline of building your app can vary drastically, based on design decisions and trade-offs. Force.com makes it easy to prototype key concepts of your offering within days. Building a prototype will help you get user feedback quickly on functionality and UI and form the basis for design – more importantly it will help you size the development effort. Navatar Group develops Free Force.com prototypes for large custom applications.

### Create the right design for your app, if you want to avoid rebuilding it

#### ✘ Mistake #4 – Using relational database design techniques in your Force.com app

Force.com provides the ease and flexibility to create custom objects and relationships. Most designers make the mistake of defining the data model like a relational database, assuming information can be stored or retrieved through the relationships. In addition, not defining reporting requirements upfront can dramatically impact the way table relationships (Master-Detail vs. Lookups) are structured and de-normalized. The wrong Force.com database design impacts user experience (too many clicks), analytics (inability to generate appropriate reports) and performance (response times).

#### ✘ Mistake #5 – Not knowing when to use Visualforce vs. Apex Triggers

You can utilize Visualforce or Apex Triggers (in addition to S-Controls, before they get phased out) for writing custom code, depending on your need. Visualforce provides the powerful ability to design complex UIs leveraging custom controllers which can be reused in other Visualforce pages. However, there are quite a few situations where Apex triggers may be the way to go. For instance, a piece of custom code that needs to be executed from

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Testing is done very differently on Force.com. Typically, the test environment isn't a separate one. There aren't any automated testing tools. However, an application can be tested in a much shorter timeframe in the Force.com world since you do not need to test everything. There are several techniques to reduce testing time such as automating test scripts or conducting development and testing in parallel.

multiple places in the app, may be better suited for Apex Triggers as opposed to Visualforce where the code will need to be replicated. Various other factors will determine how your code must be designed and written – understand them upfront to avoid re-design.

✘ **Mistake #6 – Creating a design without defining your security needs**

Force.com provides a robust security model and the security settings can be manipulated through configuration for most simple applications. For more complex needs, the base security model can be manipulated using other mechanisms. For instance, there may be a need for security settings of an object to automatically impact the security settings of other related objects – such a need would not be met through the base model. Any custom manipulation of the security model needs to be identified upfront and incorporated into the app design. Otherwise it will lead to code re-writing and re-testing.

✘ **Mistake #7 – Leaving Maintenance and Enhancements for others to worry about**

Force.com enables short development cycles. Most designers do not anticipate issues with application maintenance or functionality enhancements, when they are in design or development stages. However, you may later find that your system design does not allow for enhancements – it may also make maintenance requests hard to fulfill. For instance, as more and more data gets populated into the system, you may start running into governor limits, requiring you to completely re-write a program. There are several design principles that can be incorporated to help you avoid re-designing the system later – ask your Force.com consultant.

**Building in the cloud will be different – prepare for the change**

✘ **Mistake #8 – Relying on traditional methodologies to develop your app**

Most traditional development tools/methodologies, waterfall or iterative, are skewed towards activities that are either accomplished differently or are redundant in the Force.com world. Pre-built components enable prototyping, designing, developing and testing to be done in very rapid cycles in Force.com, where development staff plays multiple roles. Your existing methodologies/tools may still work for you – however, they will most probably double your time and cost.

✘ **Mistake #9 – Not paying attention to code optimization**

Efficient use of system resources is very important in Force.com. Budget time upfront for optimizing code after development, since it will be needed even with the most robust design, due to runtime issues. For instance, the total number of SOQL queries may exceed the allowable limit if there are multiple triggers written on an object. Lack of attention to code optimization may impact performance, prevent future enhancements or sometimes lead to a complete re-write.

✘ **Mistake #10 – Using the traditional testing methods**

Testing is done very differently on Force.com. Typically, the test environment isn't a separate one. There aren't any automated testing tools. However, an application can be tested in a much shorter timeframe in the Force.com world since you do not need to test everything. There are several techniques to reduce testing time such as automating test scripts or conducting development and testing in parallel. Navatar Group has created a unique testing methodology for Force.com that can cut your testing time in half.

Force.com is a very comprehensive platform and, as such, provides various options and trade-offs. Like any good architect, your first critical task must be to understand your business constraints and needs. Mapping the Force.com capabilities to your business framework will be the key to success in the cloud.

## About the Author



Ketan Khandkar is a Principal at Navatar Group and a top expert in business solutions built on Cloud Computing. One of the founders of Navatar, Ketan heads the firm's Financial Services product strategy as well as client delivery. He has also developed SaaS product strategies for several ISVs. Under his leadership, Navatar has delivered hundreds of complex deployments on salesforce and Force.com across multiple industries.

Ketan's management consulting career began at Deloitte Consulting, where he was a leading expert in business process transformation through technology. Over the years, he has authored some of the most successful SaaS methodologies and models designed to maximize technology adoption. Ketan holds a Bachelors degree in Computer Science from Birla Institute of Technology, Pilani, India as well as an MBA in Finance from New York University Stern School of Business.

## About Navatar Group

Navatar Group is a global consulting firm providing SaaS advisory and implementation services and products. Founded by veterans of Deloitte Consulting, Navatar Group has enabled several large companies develop and launch SaaS products as well as helped hundreds of organizations successfully implement On-Demand solutions on the Force.com platform.

One of the first to bring Wall Street experience to Cloud Computing, Navatar Group also has first-hand experience in launching SaaS products, being a leading provider of Force.com solutions for the financial sector. Our comprehensive SaaS Transformation methodology is designed to help ISVs with all business and technical aspects of a SaaS transition. Navatar's SaasCase™ is a Proof-Of Concept offering that helps ISVs test the market and perform a cost/benefit analysis before developing a SaaS product. The initial Scoping and Planning phase of SaasCase™ is provided free of cost.

Navatar Group is a premier salesforce.com partner and is headquartered in New York with offices in Washington DC, London and New Delhi, India.

**For more information**

Contact Ketan Khandkar at  
kkhandkar@navatargroup.com

**New York**

44 Wall Street, 12th Floor  
New York, NY 10005  
Phone: 212-461-2140  
Fax: 212-461-2141  
www.navatargroup.com

**Metro Washington, D.C.**

11800 Sunrise Valley Drive  
Reston, VA 20191  
Phone: 703-476-3640  
www.navatargroup.com

**New Delhi**

B-59, Sector 60,  
Noida 201301 (UP)  
Phone: 0120-4247281  
Fax: 0120-4247282  
www.navatargroup.com



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