CLOUD STRATEGY

A Decision-Based Approach to Successful Cloud Migration

Gregor Hohpe

An Architect Elevator Guide

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Cloud Strategy

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Cloud computing changes the role technology plays in enterprises from "keeping the lights on" to boosting innovation through agility, frequent releases, and automation. It only seems appropriate to embrace the same principles when writing a book about this transformation. That's why this book started out as a Leanpub book, which supports early releases of in-progress ebooks using lightweight tools and iterations. You're reading the result of this iterative process, which elevates readers to become active participants through early feedback.

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About This Book

Strategy is the difference between making a wish and making it come true.

Cloud computing is an amazing resource that can provide fully managed platforms, instant scaling, auto-optimizing and even auto-healing operations, per-second billing, pre-trained machine learning models, and globally distributed transactional data stores. The cloud is also a critical enabler for organizations to compete in economies of speed. So, it's no wonder that most enterprises want to take advantage of such capabilities.

Migrating an entire enterprise to the cloud isn't as easy as pushing a button, though. Simply lifting and shifting legacy applications is unlikely to bring the anticipated benefits, whereas re-architecting applications to run optimally in the cloud can be cost prohibitive. In addition, organizations looking to reap the full rewards from cloud technology also need to consider changes to their business model and their organization. Enterprises thus need a more nuanced strategy than simply proclaiming "cloud first!"

A sound cloud strategy isn't something you can copy from a recipe book or from another organization. Diverse starting points, objectives, and constraints imply different choices and trade-offs. Instead, you need a set of proven decision models that help you analyze your specific situation, evaluate options, understand trade-offs, and articulate your choice to a broad audience.

Unfortunately, most books on cloud computing either stay at a very high level or focus on specific vendors and products. This book closes this gap by questioning existing assumptions, establishing technology-neutral decision models, and presenting a new way to think about your cloud journey.

Life Teaches the Best Lessons

My book *37 Things One Architect Knows About IT Transformation* describes how architects can drive change in large organizations by riding the "Architect

Elevator" from the penthouse to the engine room. *Cloud Strategy* applies this mental model to cloud architecture and cloud migrations. Just like *37 Things*, *Cloud Strategy* includes many anecdotes and the occasional punch line based on my real-world experience.

I have been in charge of major cloud transformations in three distinct roles:

- As chief architect of a major financial services provider, I devised and built a private cloud platform to speed up application delivery.
- As technical director at a major cloud provider, I advised strategic clients in Asia and Europe, including some of the largest retailers and telecommunications companies, on aligning their cloud strategy with their organizational transformation.
- As a Singapore smart nation fellow, I laid out an overarching cloud strategy at the national level.

Each environment presented its unique set of challenges but also shared noteworthy commonalities. In this book, I distill them into concrete advice so that everyone can benefit from my experience and occasional mistakes.

Each technology migration involves specific vendors and products. This book stays away from individual products as much as possible, using them only as occasional examples where considered helpful. Documents describing products are widely available, and whereas products come and go, architectural considerations tend to stay. Instead, as with *37 Things*, I prefer to take a fresh look at some well-trodden topics and buzzwords to give readers a novel way of approaching some of their problems.

Cloud Stories

Corporate IT can be a somewhat uninspiring and outright arduous topic. But IT doesn't have to be boring. That's why I share many of the anecdotes that I collected from the daily rut of cloud migration alongside the architectural reflections.

Readers appreciated several attributes of *37 Things*' writing style and content, which I aimed to repeat for this book:

- *Real Experience*: Rather than painting rosy pictures of what could be done, I try to describe what worked (or perhaps didn't) and why, based on actual experience.

- *Unfiltered Opinion*: I prefer to call things the way they are. Also, I am not shy to highlight downsides or limitations. There are plenty of marketing brochures already, so I'm not keen to add another one.
- *Engaging Stories*: Stories stick, so I try to package complex topics into approachable stories and engaging anecdotes.
- *Less Jargon, More Thought*: IT people are well known for spewing out the latest buzzwords. But few can tell you when to use which products and what assumptions are built into them. I aim for the opposite.
- *Valuable Take-Aways*: Stories are nice, but architects also need concrete advice to make their cloud migration successful. I share what I know.
- *Useful References*: A lot has been written on cloud computing, architecture, and IT strategy. I am not here to regurgitate what already has been written but want to synthesize new insights. I am happy to point you to related material.

So, just as with *37 Things*, I hope that this book equips you with a few catchy slogans that you're able to back up with solid architecture insight.

Better Decisions with Models

Although cloud computing is founded in advanced technology, this book isn't deeply technical. You won't find instructions on how to have your CI pipeline auto-generate YAML Helm Charts for fully automated multicluster container orchestration management in a provider-neutral fashion. You might, however, find guidelines on how you would go about deciding whether such a setup is a good match for your organization.

This book focuses on meaningful decisions, those that involve conscious and sometimes difficult trade-offs. Individual product features step aside in favor of a balanced comparison of architectural approaches. Considering both strengths and weaknesses leads to vendor-neutral decision models, often accompanied by questions that you should ask the vendor or yourself.

Employing the "Architect Elevator" notion to better connect the IT engine room to the business penthouse means that elevating the level of discussion isn't dumbing things down. Rather, it's like a good map that guides you well because it omits unnecessary detail. This book therefore removes noise and highlights critical aspects and connections that are too often overlooked. It will make you see the forest and not just the trees, sharpening your thinking and decision making at the relevant level.

What Will I Learn?

This book is structured into six major sections that roughly follow the cloud journey that a complex organization is likely to undertake:

Part I: Understanding the Cloud

The cloud is very different from procuring a traditional IT product. So, rather than follow a traditional selection and procurement process, you'll have to rethink the way your IT works.

Part II: Organizing for the Cloud

Cloud computing impacts more than technology. Getting the most out of cloud necessitates organizational changes, affecting both structure and processes.

Part III: Moving to the Cloud

There are many ways to the cloud. The worst you can do is transport your existing processes to the cloud, which will earn you a new data center, but not a cloud—surely not what you set out to achieve! Therefore, it's time to question existing assumptions about your infrastructure and operational model.

Part IV: Architecting the Cloud

There's a lot more to cloud architecture than picking the right vendor or product. It's best to dodge all the buzzwords and use architectural decision models, instead. This includes multi- and hybrid-cloud, but perhaps not in the way the marketing brochures laid it out.

Part V: Building (for) the Cloud

The cloud is a formidable platform. However, applications running on top of this platform need to do their part, as well. This section looks at what makes an application cloud-ready, what serverless is all about, and what the big deal is about containers.

Part VI: Budgeting the Cloud

> With greater control also comes greater responsibility. The cloud's elastic pricing and high levels of automation can significantly reduce your operational costs—as long as you're willing to leave some past assumptions behind.

Although you're most welcome to read all chapters in sequence, the book is designed to be read in any order that best suits your needs. So, you can easily dive into a topic that's most relevant to you and follow the many cross-references to related chapters. A cloud journey isn't linear.

Will It Answer My Questions?

I often warn my workshop participants that they should expect to leave with more questions than they came with. Similarly, this book presents a new way of thinking rather than simply being an instruction sheet. It may therefore also raise new questions. I consider this a good thing for two reasons. First, you'll have better questions in your mind, the ones that lead you to making meaningful decisions. And second, you'll have better tools to answer those questions within their specific context, as opposed to relying on some generic paint-by-numbers framework.

There is no copy-paste for transformation. So, this book likely won't tell you exactly what to do. But it will allow you to make better decisions for yourself. Think about it as learning how to fish (see the cover).

Do's and Don'ts

Much of this book is dedicated to looking beneath the surface of the cloud technology buzzwords, aiming to give enterprises a deeper and more nuanced view on what's really involved in a cloud migration. However, as an architect or IT leader, you're also expected to devise an execution plan and lead your organization on a well-defined path. For that you need concrete, actionable advice.

Several chapters therefore include a *Do's and Don'ts* section at the end that summarizes recommendations and provides words of caution. You can use them

as a checklist to avoid falling into the same traps as others before you. Think about yourself as Indiana Jones—you're the one who dodges all the traps filled with skeletons. It's challenging and might be a close call sometimes, but you come out as the hero.

What's with the Fish, Again?

The cover shows a swarm of fish that resembles a large fish. I took it in the Enoshima Aquarium in Japan, just a short train ride south of Tokyo, not far from Kamakura. Keeping with the theme of using personal photos of fish from *37 Things*, I selected this swarm because it illustrates how the sum of the parts has its own shape and dynamic—a swarm is more than just a bunch of fish. The same is true for complex architectures and the cloud in particular.

Getting Involved

My brain doesn't stop generating new ideas just because the book is published, so I invite you to have a look at my blog to see what's new:

> https://architectelevator.com/blog

Also, follow me on Twitter or LinkedIn to see what I am up to or to comment on my posts:

> http://twitter.com/ghohpe
> http://www.linkedin.com/in/ghohpe

Of course, I am happy if you would like to help spread the word and tell your friends about this book. The best way to do so is by sharing this handy URL:

> http://CloudStrategyBook.com

Acknowledgments

Books aren't written by a sole author locked up in a hotel room for a season (if you watched *The Shining*, you know where that leads…). Many people have knowingly or unknowingly contributed to this book through hallway conversations, meeting discussions, manuscript reviews, Twitter dialogs, or casual chats. My heartfelt thanks to all of them for their friendship and inspiration.

Author Biography

Gregor Hohpe is an enterprise strategist with AWS. He advises CTOs and technology leaders in the transformation of both their organization and technology platform. Riding the Architect Elevator from the engine room to the penthouse, he connects the corporate strategy with the technical implementation, and vice versa.

Gregor served as Smart Nation Fellow to the Singapore government, as technical director at Google Cloud, and as chief architect at Allianz SE, where he deployed the first private cloud software delivery platform. He has experienced most every angle of the technology business, ranging from start-up to professional services and corporate IT to internet-scale engineering.

Other Titles by This Author

The Software Architect Elevator, O'Reilly, 2020
Enterprise Integration Patterns, Addison-Wesley, 2003 (with Bobby Woolf)

Michele Danieli is the head of architecture practice at Allianz Technology Global Lines, leading globally distributed architecture teams building platforms. He started his career in the engine room and sees architecture and engineers as best friends. A good diagram and a mind map are his essential tools, and code is not a foe.

Tahir Hashmi has developed large-scale distributed applications at internet businesses serving more than 100 million users, like Flipkart, Zynga, Yahoo, and most recently, Tokopedia, where he now leads the technology strategy as vice president and technical fellow. His mission is to make distributed cloud computing as simple as writing a program on the laptop.

Jean-François Landreau leads the infrastructure team at Allianz Direct. When SRE and DevOps shifted the collective excitement from software development toward operations, he decided to follow along. He is a strong believer that you can't take enlightened enterprise decisions if you are too far away from the engine room.