



OpenStack For Architects

Ben Silverman, Principal Cloud Architect

March 29th, 2017



A close-up photograph of a person's hand holding a red smartphone. The hand is pointing the phone's screen towards a stack of architectural blueprints. The blueprints show detailed floor plans with various rooms, dimensions, and technical annotations. The lighting is dramatic, with strong highlights on the hand and the phone, while the background and blueprints are in soft focus.

I work for OnX as a Principal Architect

I'm just not *this kind* of Architect

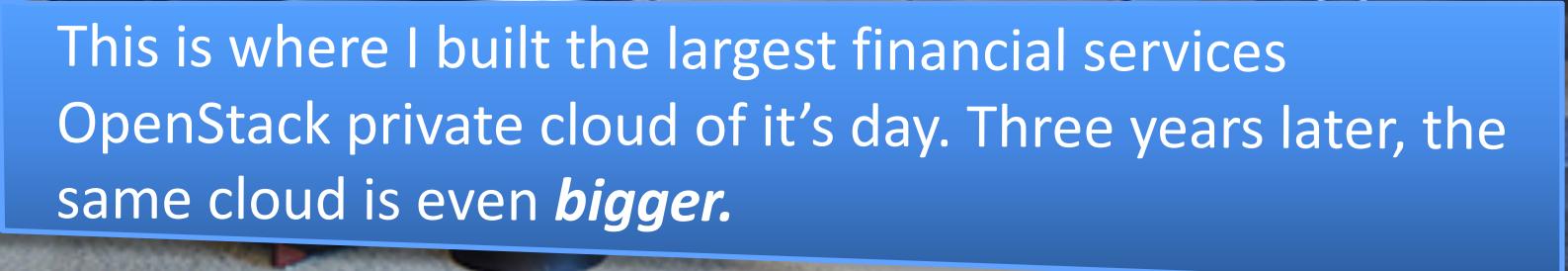
I architect

Clouds

A photograph of an American Express office lobby. The wall behind the reception desk features a large, three-dimensional "AMERICAN EXPRESS" sign. In the foreground, a dark blue rectangular overlay contains the text "I worked here for 12 years". To the right, a black wall displays a graphic of a crowd of people with the words "Relationship care" and a red heart icon.

AMERICAN EXPRESS

I worked here for 12 years

A blue rectangular callout box contains the following text:

This is where I built the largest financial services OpenStack private cloud of it's day. Three years later, the same cloud is even **bigger**.

I then joined the private cloud software company, Mirantis as a Senior System Architect

Where I helped these and other companies with their clouds ...



Summary

- ✓ **25+ years** of IT experience
- ✓ **4 years experience** with OpenStack and **Active Technical Contributor**
- ✓ Architected and built the first **American Express** OpenStack cloud now running
~**10,000 instances**
- ✓ Worked for **Mirantis in Sunnyvale, CA** as a Senior Architect and Systems Engineer
- ✓ Designed architectures for companies like EMC, Cox, GCI, Verizon and other Fortune 100 companies
- ✓ Certified in **Red Hat** and **Mirantis** OpenStack
- ✓ Has a **Master of Science** degree in **Information Management** from Arizona State University's W.P. Carey School of Business
- ✓ Co-authored book, "OpenStack for Architects" (Feb 2017) and was Technical Reviewer for the book "Learning OpenStack(2016)"





Michael Solberg, Ben Silverman

Openstack for Architects

Design and implement successful private
clouds with OpenStack



Packt

Agenda

- > Why OpenStack for Architects?
- > How we wrote the book?
- > Use Cases: What use are you?
- > Architecture: Planning is for squares!
- > Operations: Smooth operator, smooth operator.
- > What's next?
- > Q&A



Why did we write “OpenStack for Architects?”

- > Too many customer architecture issues
- > Lots of how-to books
- > Lack of Architects for OpenStack
- > No holistic documentation



How we wrote the book

- > Collaborative, but not at first
- > Divide and conquer
- > Research, research, and predict
- > Collaborative editing, offshore publishing staff.



3 Key Elements

Use Cases (Architectural)

- > Know your use case, then know it again.
 - Development Cloud aka Web Scale
 - ITaaS
 - HPC
 - Hadoop
 - NVF
 - DBaaS
 - Container Optimized
 - Etc.
- > use_cases >= 1 per cloud
- > Reference Architecture (Architect's Job)



Architecture and the Design Document

- “How” phase to avoid the “Oww” phase
- Plan the components individually based on use case requirements
 - Compute
 - Storage
 - Network
 - Availability, Cells, Regions
 - Tenants
 - Security
 - Operations (OSS/BSS)
- Life Cycle Management (deployment)



Operations and Security

- OpenStack based on 100% best practices for Linux security.
- Logging, Monitoring, Alerting (Control Plane)
- Continuous Performance and Reliability Testing
- Capacity planning
- Backups and Failure Scenarios



The Future of OpenStack

What's Next for OpenStack (as I see it)

- > OpenStack is about to eat its own dog food.
- > Containers will be AND and not OR
- > Telcos will further adopt NFV
- > APAC and LATAM adoption will outpace NORAM!
- > OpenStack gets more boring, stability and ease of install increase.
- > AWS and OpenStack will see further integration through cloud management solutions and 3rd party tools.



Q&A