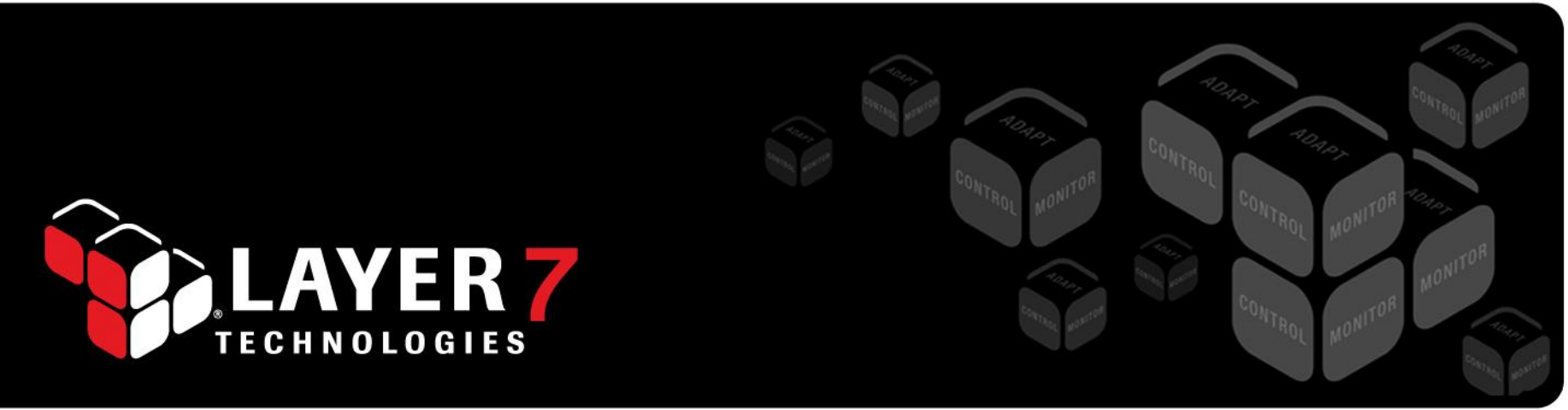


Programming with the OSS ‘Cloud Stack’

- Mike Amundsen
  Principal API Architect
  Layer 7 Technologies
- @mamund

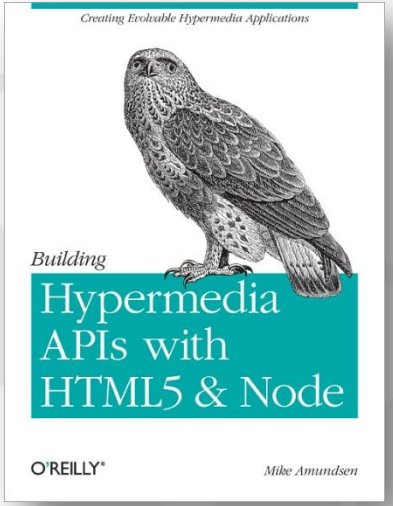
Preliminaries

- Mike Amundsen
- Web Architect, Author, Presenter
- Software Explorer
- Principal API Architect, Layer 7 Technologies

LAYER 7 TECHNOLOGIES

Last Project

- **Building Hypermedia APIs w/ HTML5 & Node *(November 2011)***
- Methodology for writing/maintaining business-level APIs in the cloud.
- Real solutions for real use-cases.
- Three Servers, Six Clients, 200+ pages.



LAYER 7 TECHNOLOGIES

Next Project

- **Programming the Web w/ HTML5 & Node *(November 2012?)***
- User's Manual for Cloud-based developers.
- I put myself on a six month diet of Chromebook-only development
- Design, code, source control, collaborate, test, & deploy
- All from the Chromebook, all to the cloud.

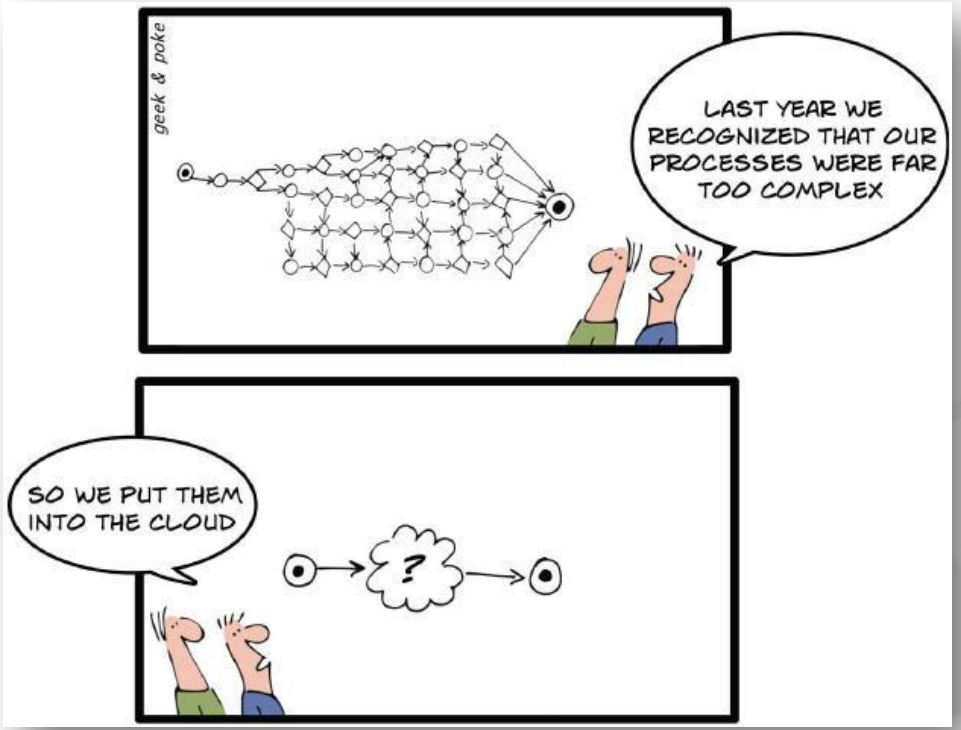
LAYER 7 TECHNOLOGIES

Goals today – “the ‘future’ of programming”

- Define some terms
  - Open source, cloud stack, etc.
- Explore “cloud programming”
  - Standards, lifecycle, etc.
- View sample products available today
  - Coding, testing, data, deployment, etc.

LAYER 7 TECHNOLOGIES

Tooling…



For the cloud!

LAYER 7 TECHNOLOGIES

Where is this coming from?

LAYER 7 TECHNOLOGIES

Start-up experience

Reducing operational costs/barriers

LAYER 7 TECHNOLOGIES

Small biz experience

Maintaining agility/flexibility

LAYER 7 TECHNOLOGIES

“Mobile-ism”

Availability anywhere/anytime

LAYER 7 TECHNOLOGIES

“Hipster-ism”

Keeping up w/ the cool kids

LAYER 7 TECHNOLOGIES

Where is this coming from?

- Start-up experience
  - Reducing operational costs/barriers
- Small Biz experience
  - Maintaining agility/flexibility
- Mobil-ism
  - Availability anywhere/anytime
- “Hipster-ism”
  - Keeping up w/ cool new toys

LAYER 7 TECHNOLOGIES

Let’s look into “the future”

LAYER 7 TECHNOLOGIES

First some definitions…

Open Source

- “**Open source** is a philosophy or pragmatic methodology that promotes free redistribution and access to an end product's design and implementation details.” - Wikipedia

LAYER 7 TECHNOLOGIES

Cloud

- “**Cloud computing** is a metaphor used by Technology or IT Services companies for the delivery of computing requirements as a service to a heterogeneous community of end-recipients.” – Wikipedia

LAYER 7 TECHNOLOGIES

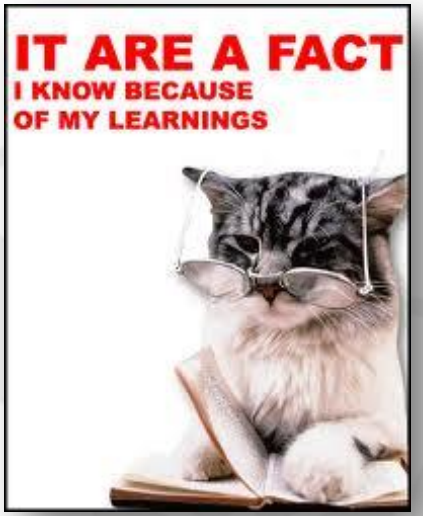
Stack

- “In computing, a **solution stack** is a set of software subsystems or components needed to deliver a fully functional *solution*, e.g. a product or service.” – Wikipedia

LAYER 7 TECHNOLOGIES

Open Source Cloud Stack

- Free distribution and access to …
  computing requirements as a service …
  to deliver a fully functional solution.



LAYER 7 TECHNOLOGIES

And the functional solution is…

Programming

- “**Computer programming** is the process of designing, writing, testing, debugging, and maintaining the source code of computer programs.” – Wikipedia

LAYER 7 TECHNOLOGIES

Let's also throw in…

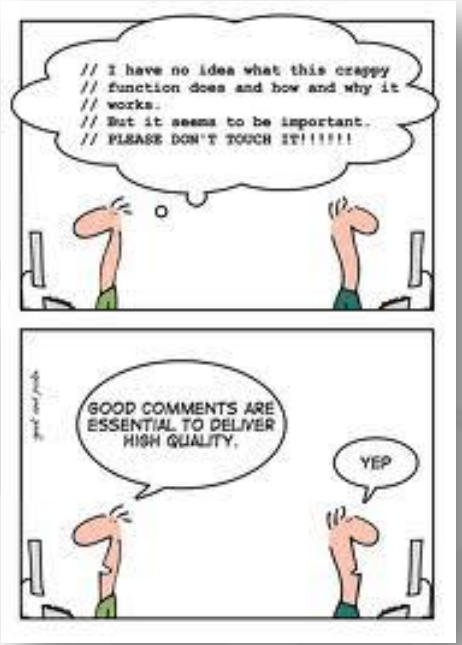
Data

- “**Data as a service** is based on the concept that the data can be provided on demand to the user regardless of geographic or organizational separation of provider and consumer.” - Wikipedia

LAYER 7 TECHNOLOGIES

Version Control

- "A **distributed version control** system (DVCS) keeps track of software revisions and allows many developers to work on a given project without necessarily being connected to a common network." – Wikipedia



LAYER 7 TECHNOLOGIES

Deployment

- “**Software deployment** is all of the activities that make a software system available for use.” – Wikipedia

LAYER 7 TECHNOLOGIES

So, in a nutshell we want…

The following open source services

- Data
- Programming
- Version Control
- Debugging/Testing
- Deployment

LAYER 7 TECHNOLOGIES

But from a browser;

LAYER 7 TECHNOLOGIES

But from a browser; cuz it's 2012, dude!

LAYER 7 TECHNOLOGIES

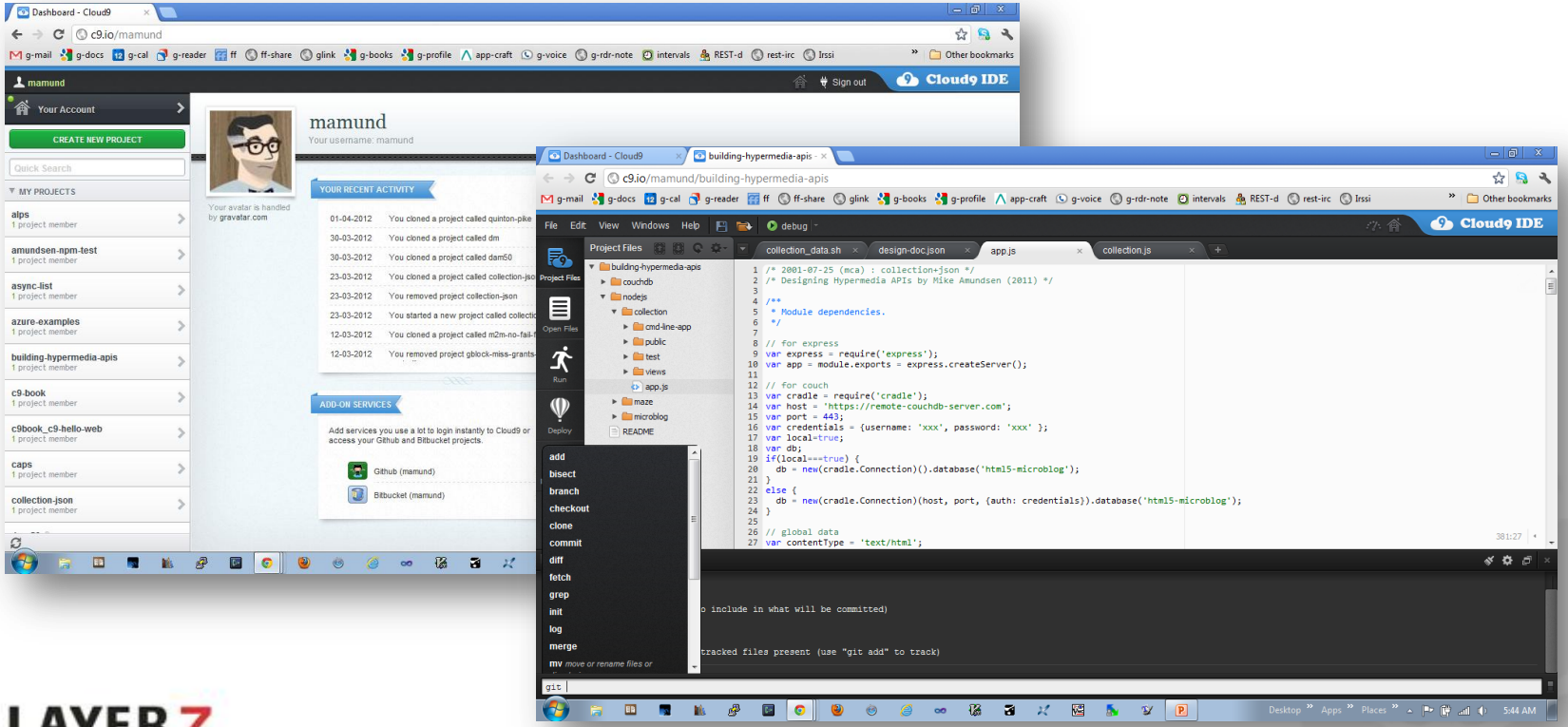
Let’s write some code…

LAYER 7 TECHNOLOGIES

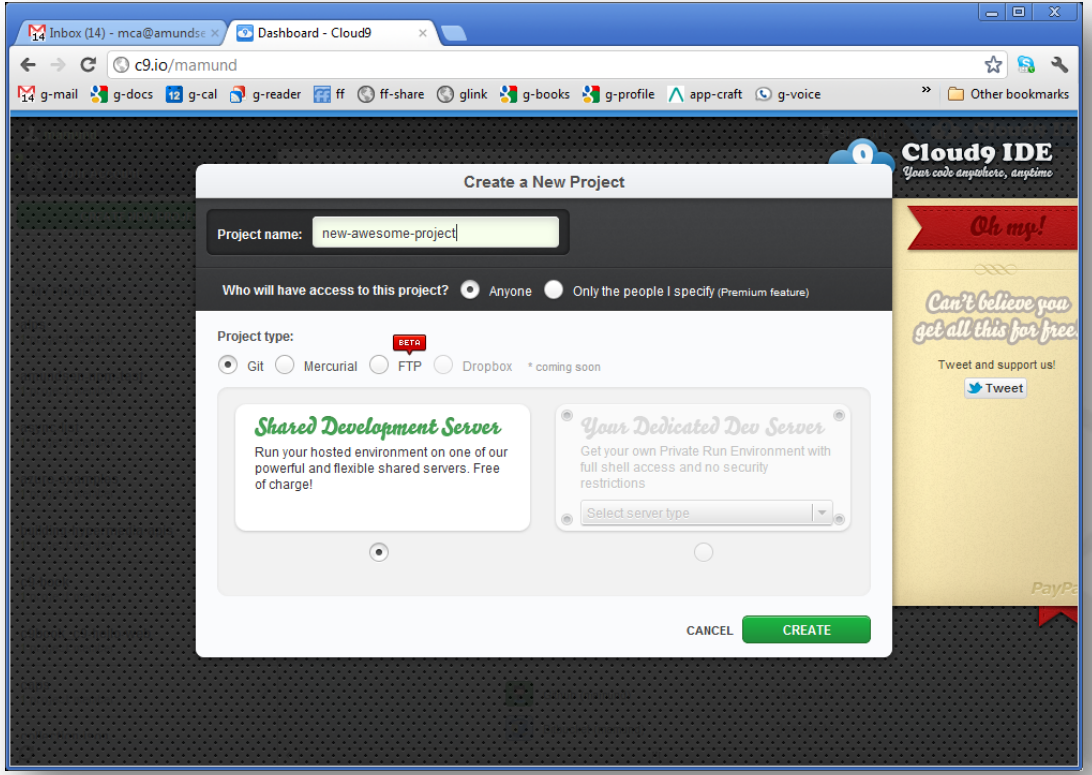
Let’s write some code…

LAYER 7 TECHNOLOGIES

Programming w/ Cloud9IDE

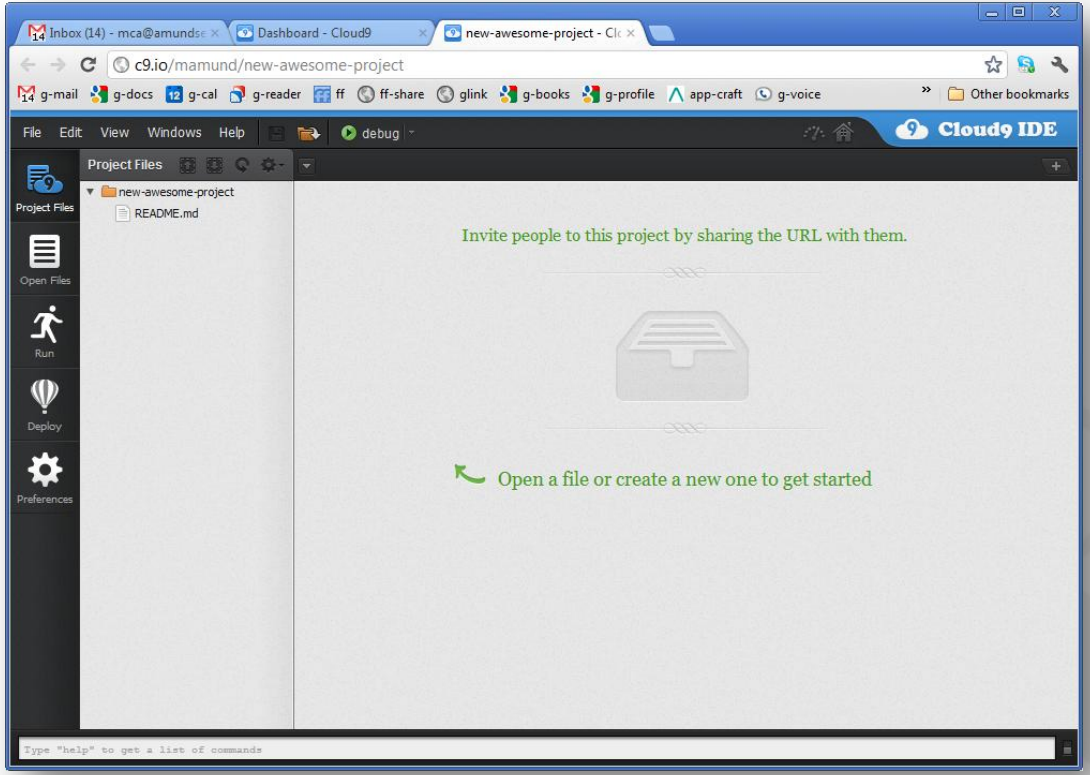


Create a Project

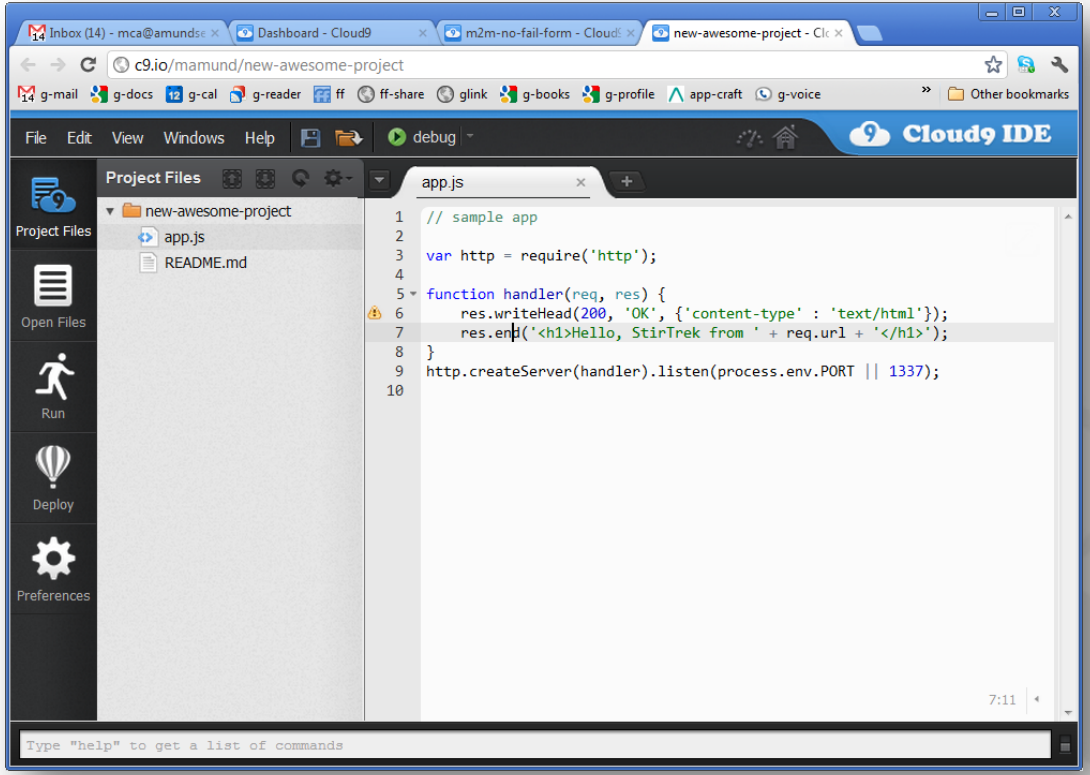


LAYER 7 TECHNOLOGIES

Open for Editing

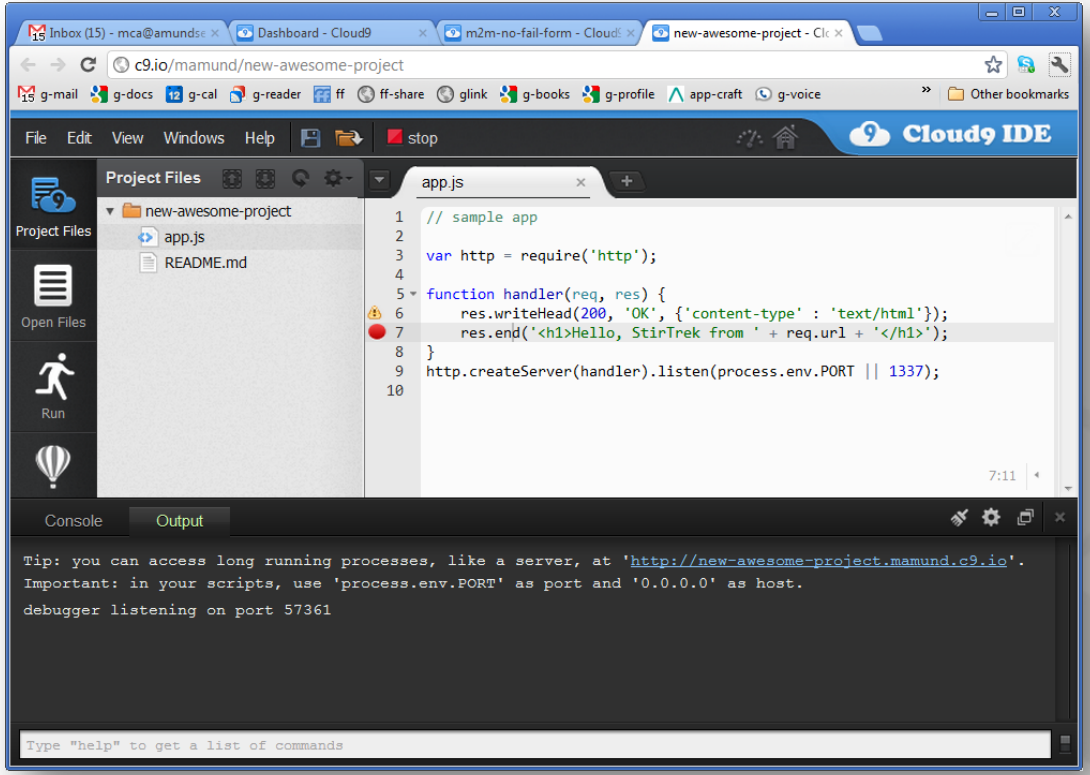


Code a simple Web server



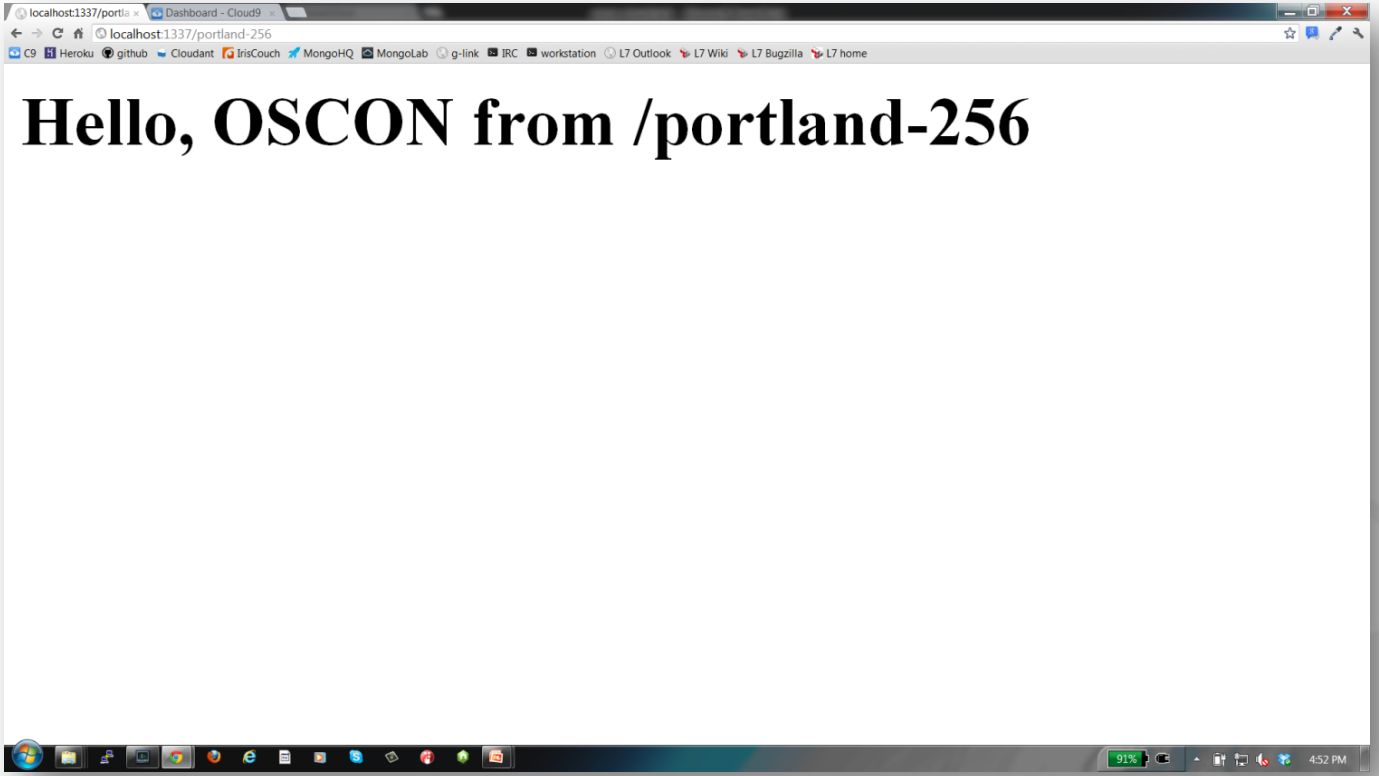
LAYER 7 TECHNOLOGIES

Fire up a VM for debugging



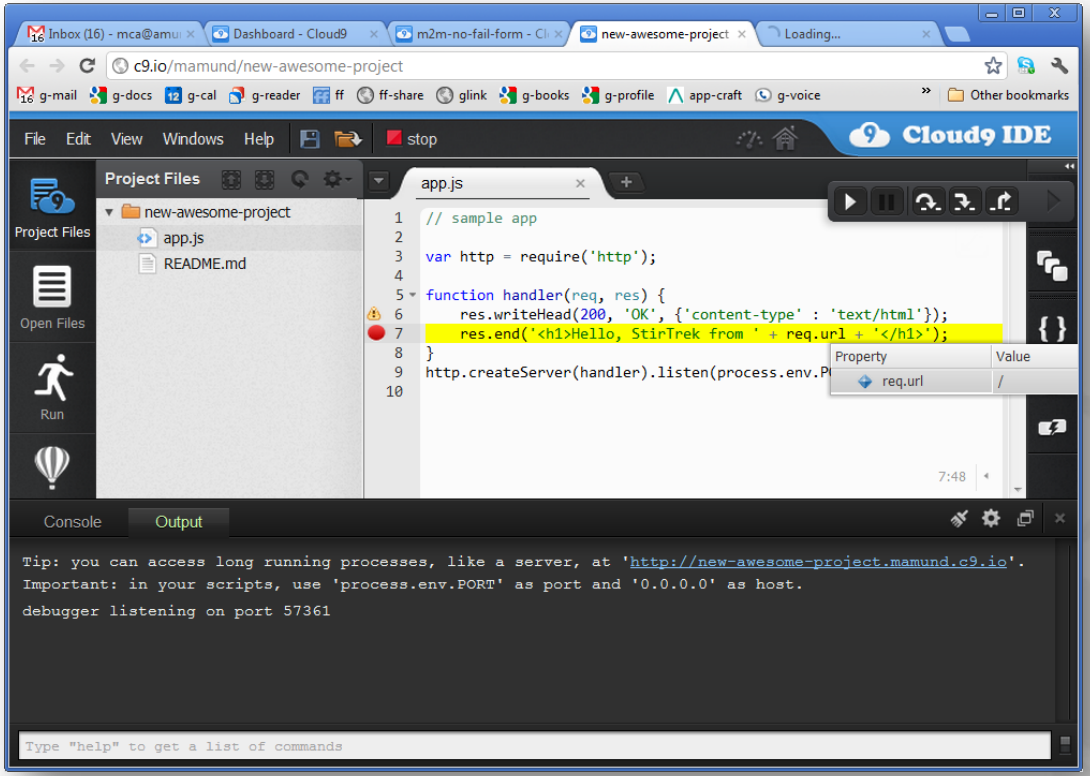
LAYER 7 TECHNOLOGIES

Run instance in your browser



LAYER 7 TECHNOLOGIES

Set breakpoints, inspect vals, etc.

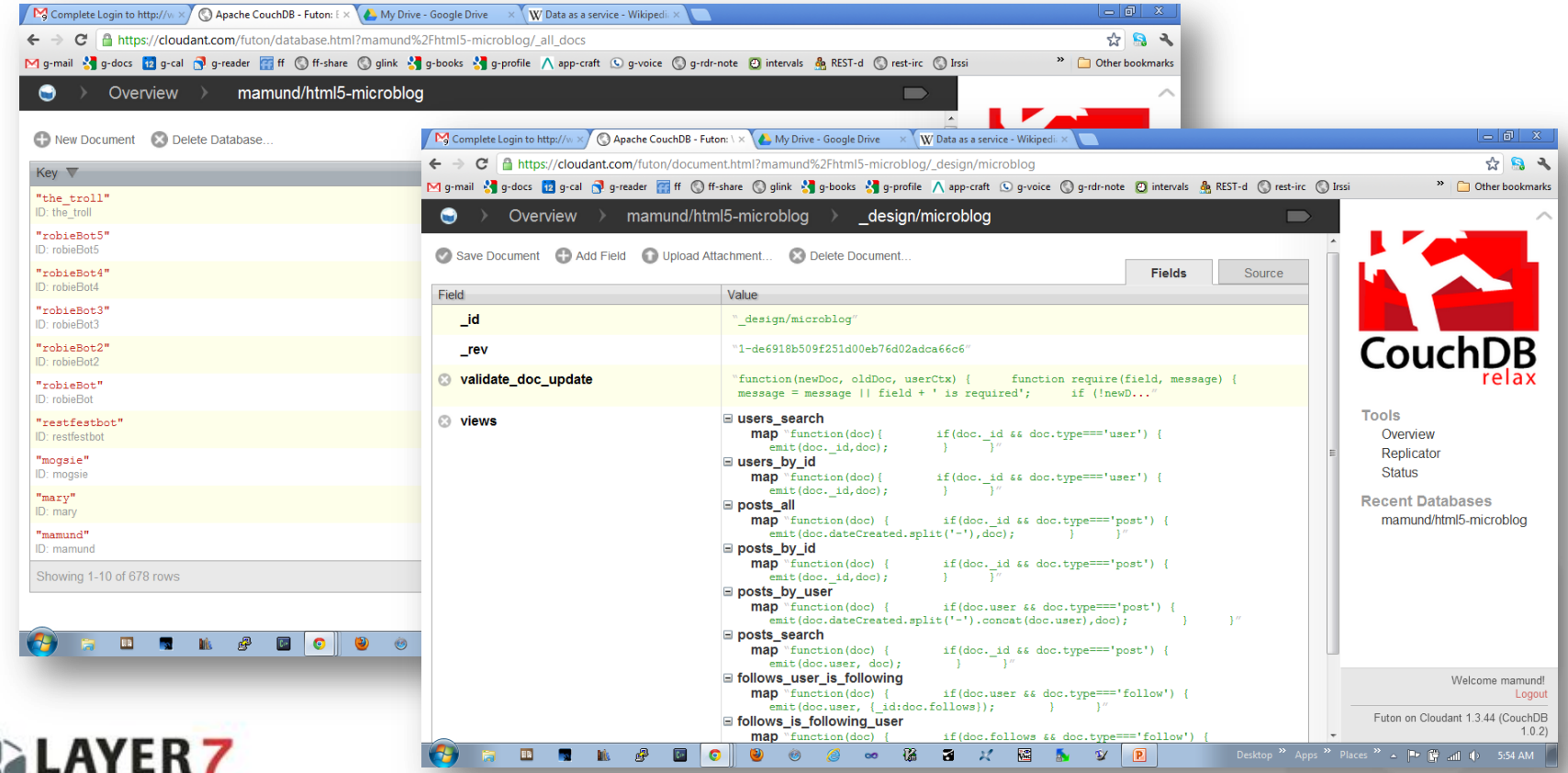


LAYER 7 TECHNOLOGIES

Let’s manage some data…

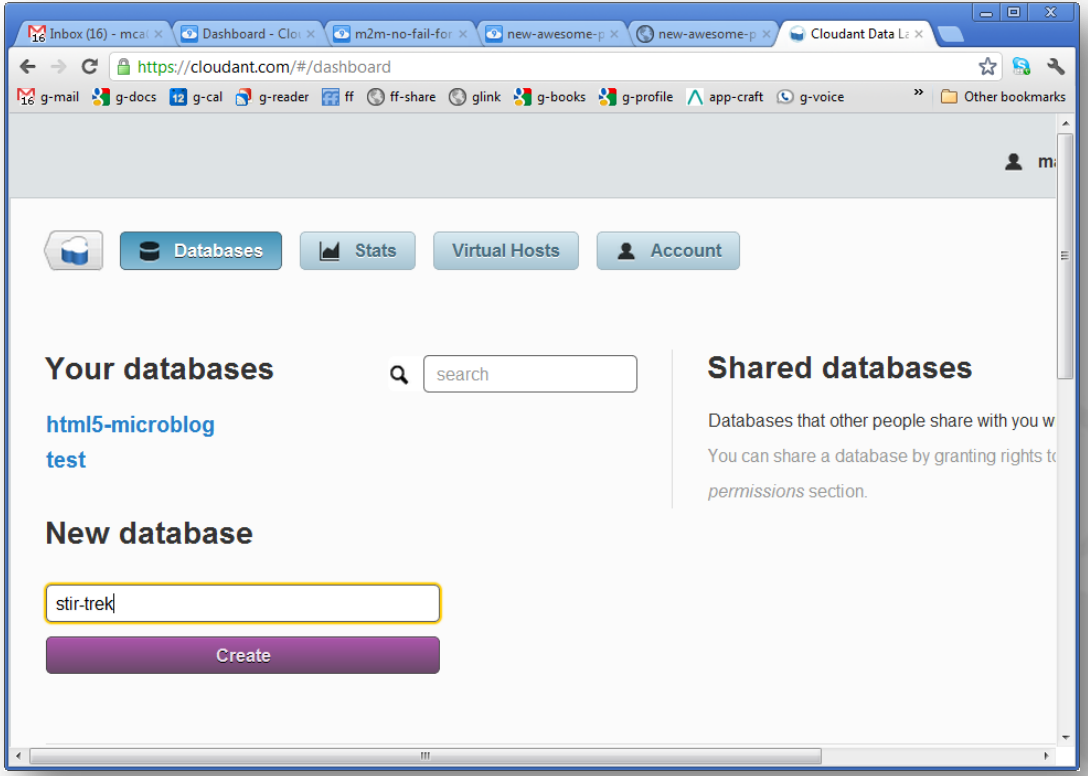
LAYER 7 TECHNOLOGIES

Data w/ CouchDB

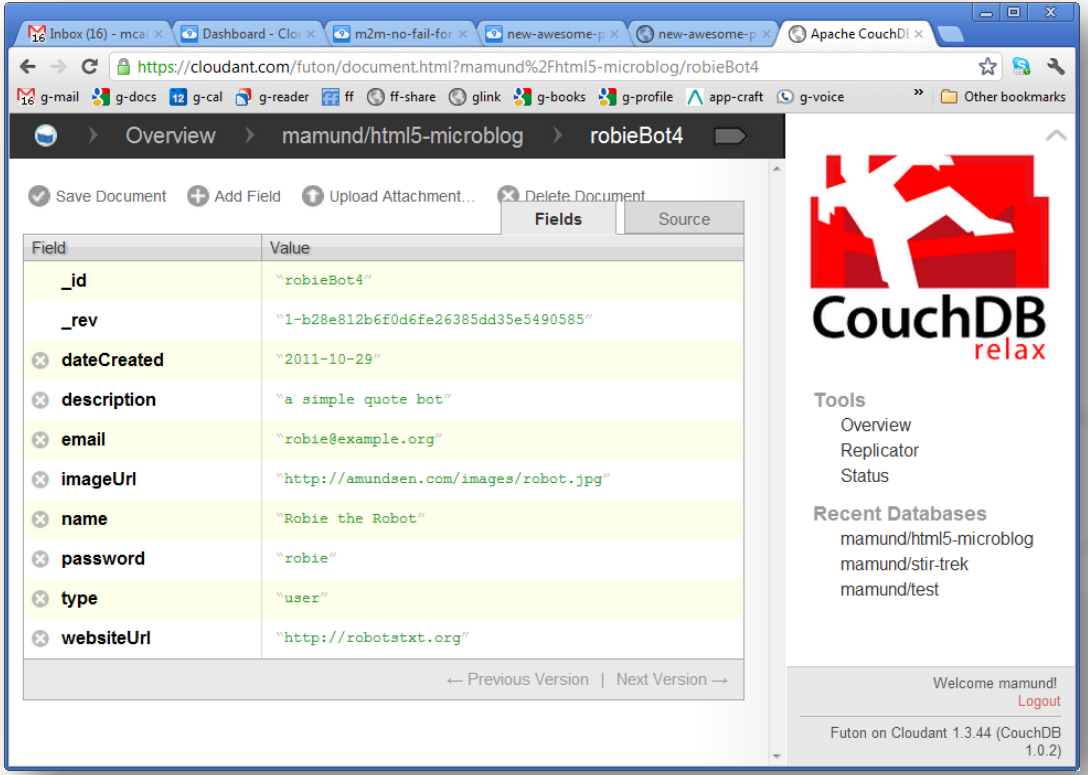


LAYER 7 TECHNOLOGIES

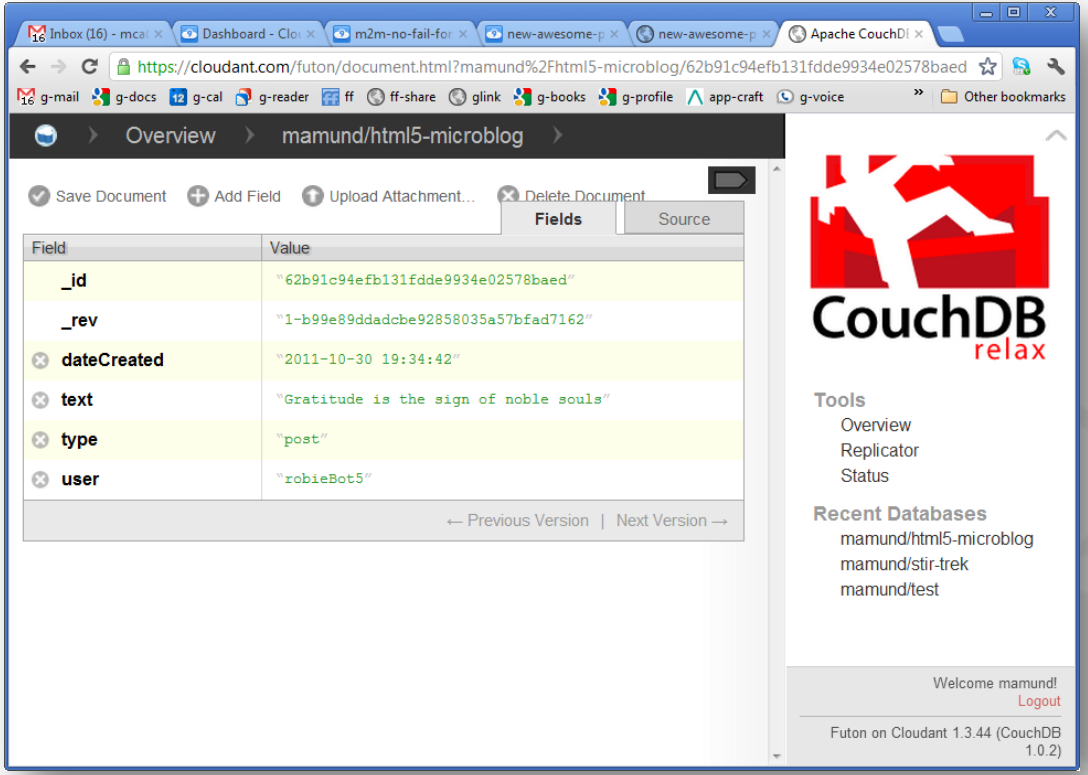
Create a Database



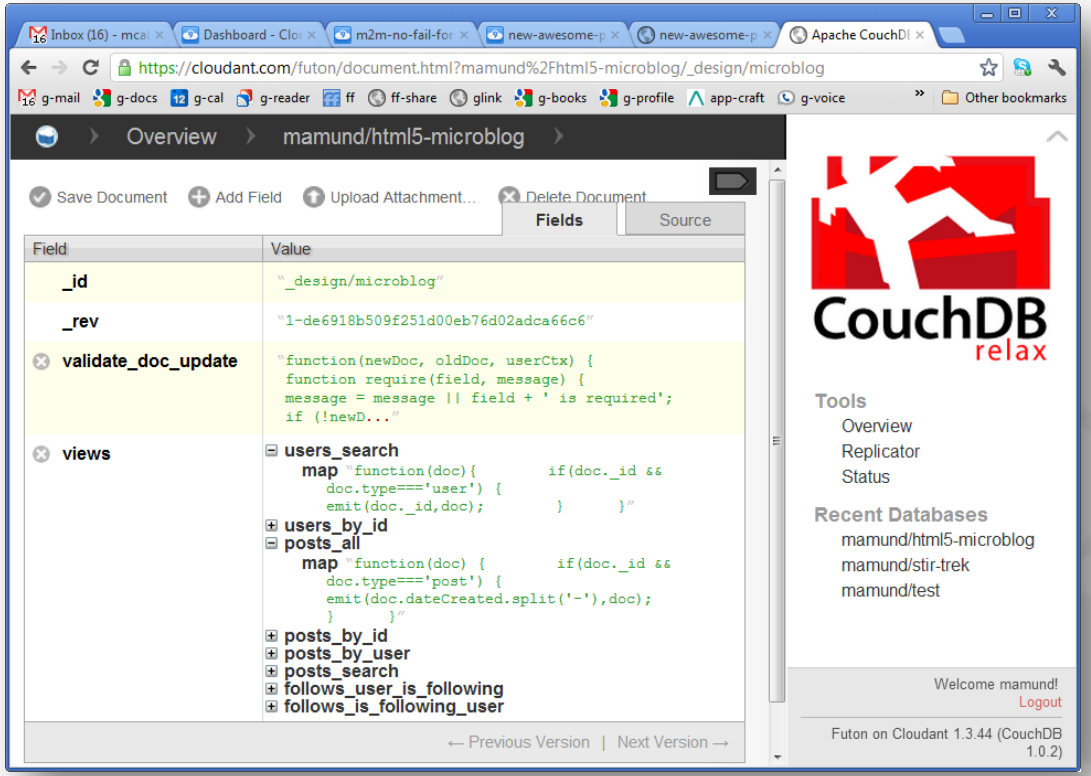
User Documents



Message Documents

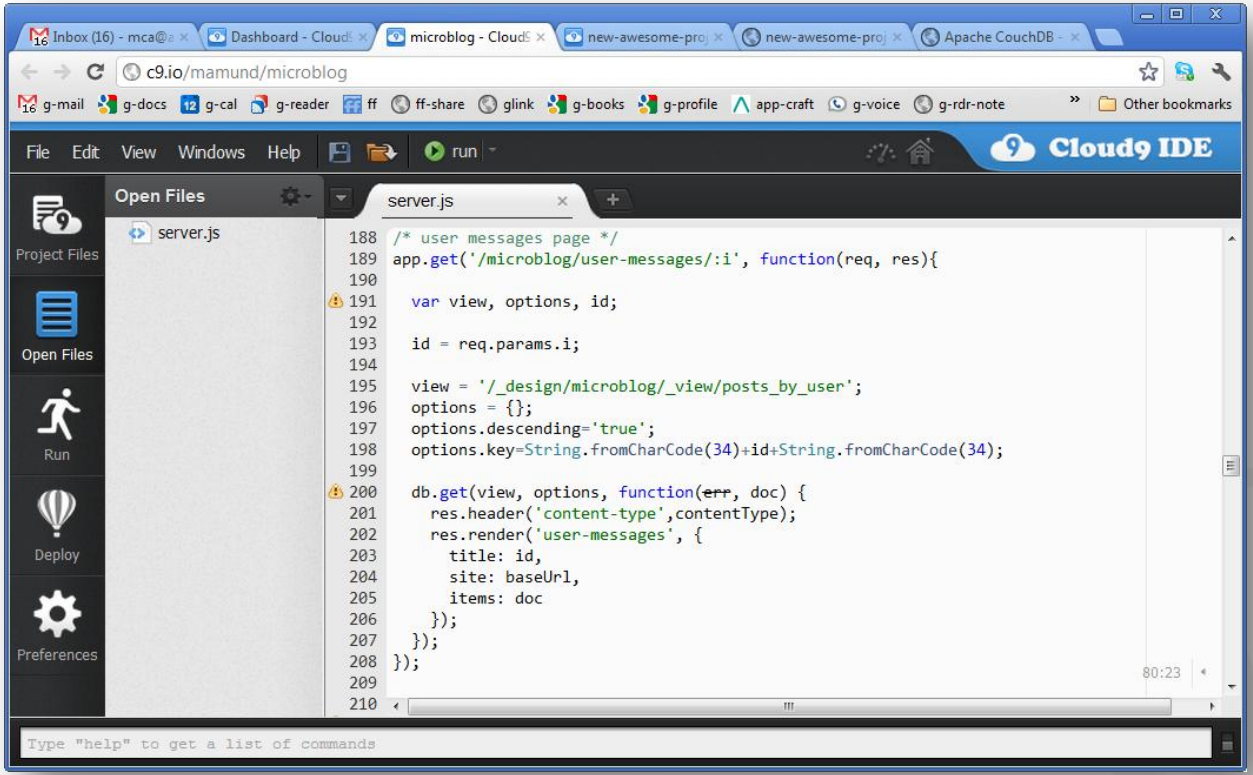


Searches and Queries

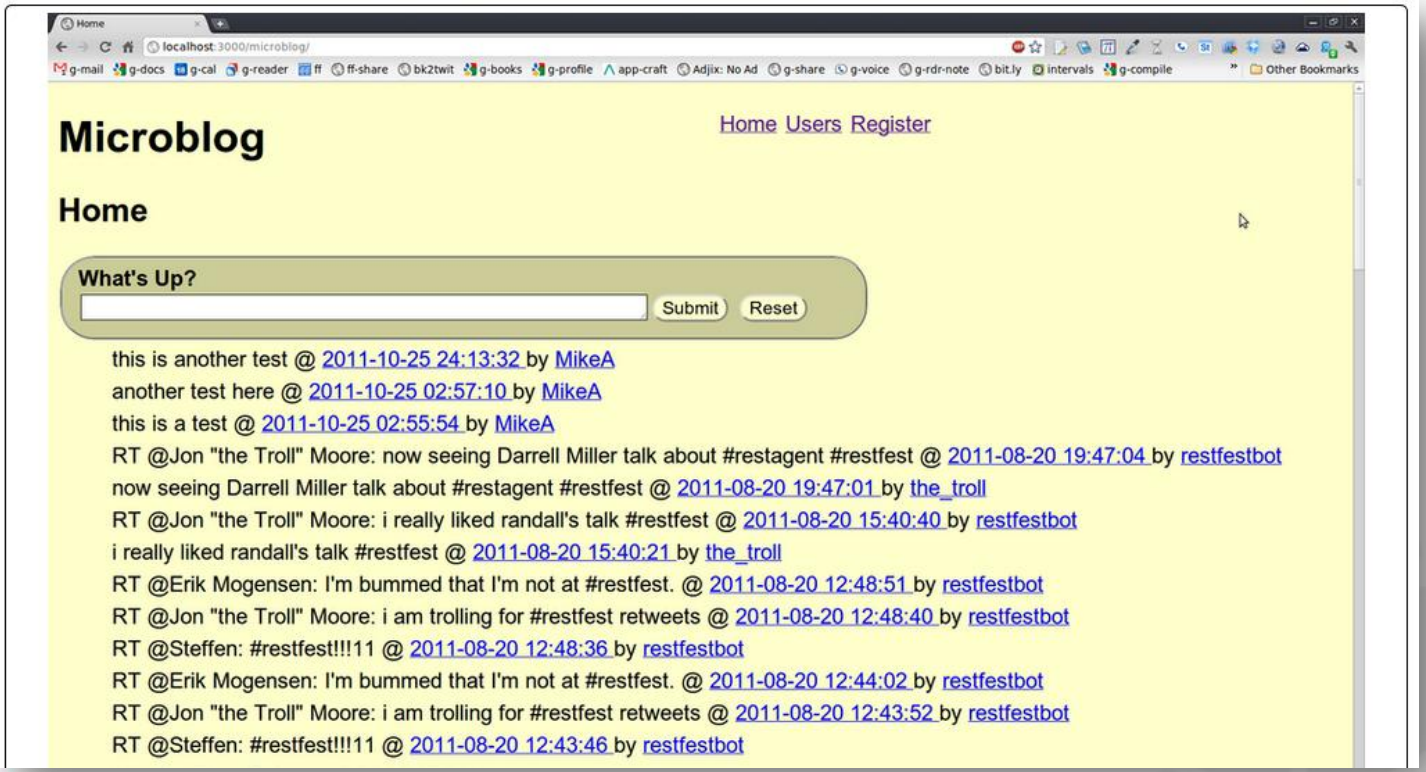


LAYER 7 TECHNOLOGIES

Code DB calls from C9 Editor



Test results in your VM

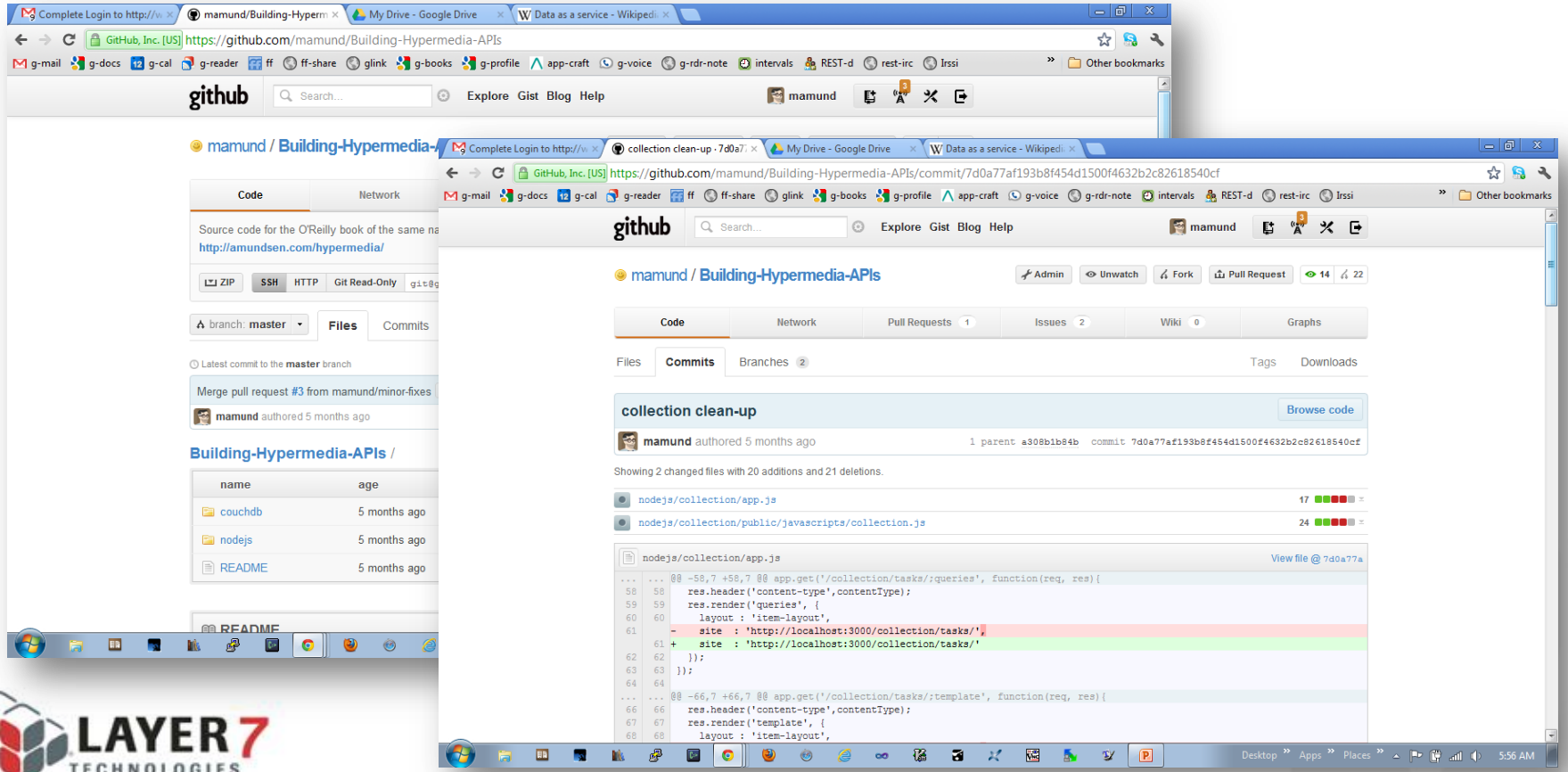


LAYER 7 TECHNOLOGIES

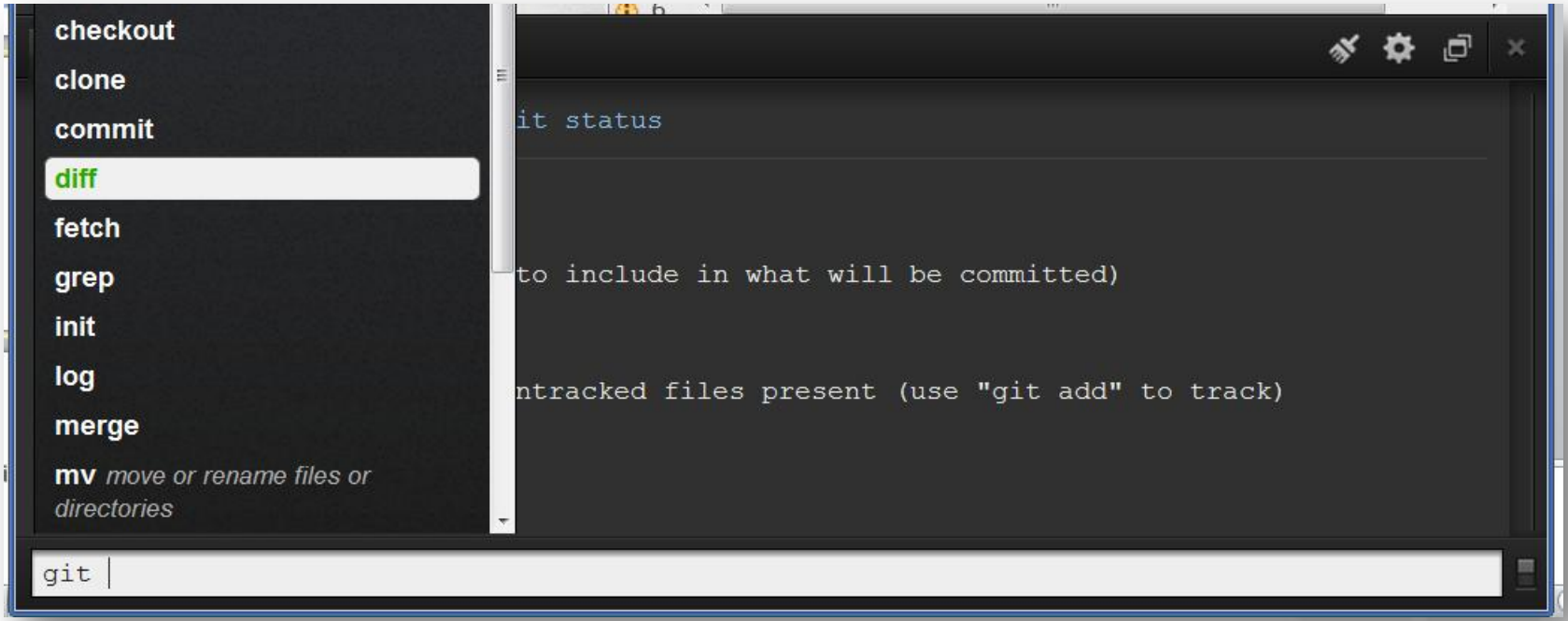
Let’s control some versions…

LAYER 7 TECHNOLOGIES

Version Control w/ Github



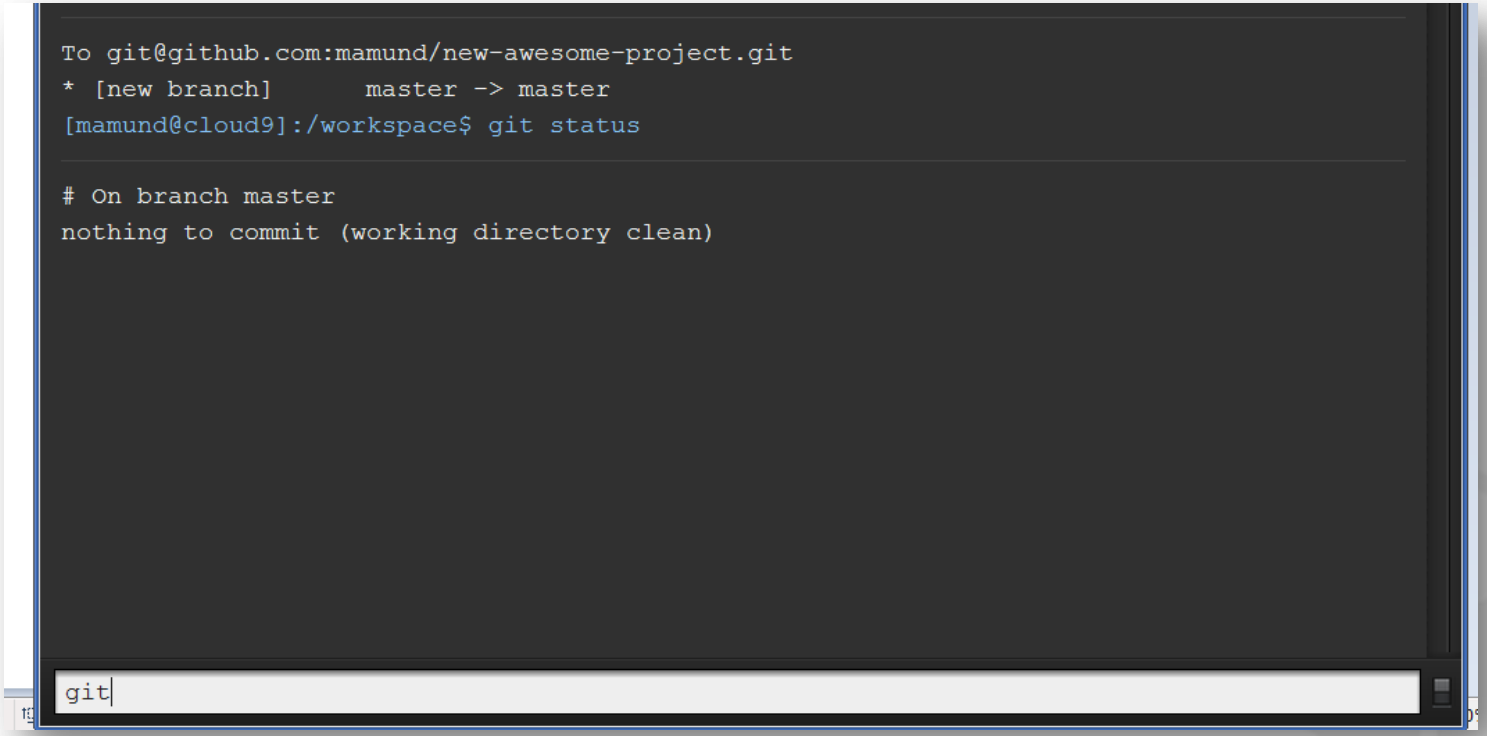
Use git client from C9 editor



Add source files and commit

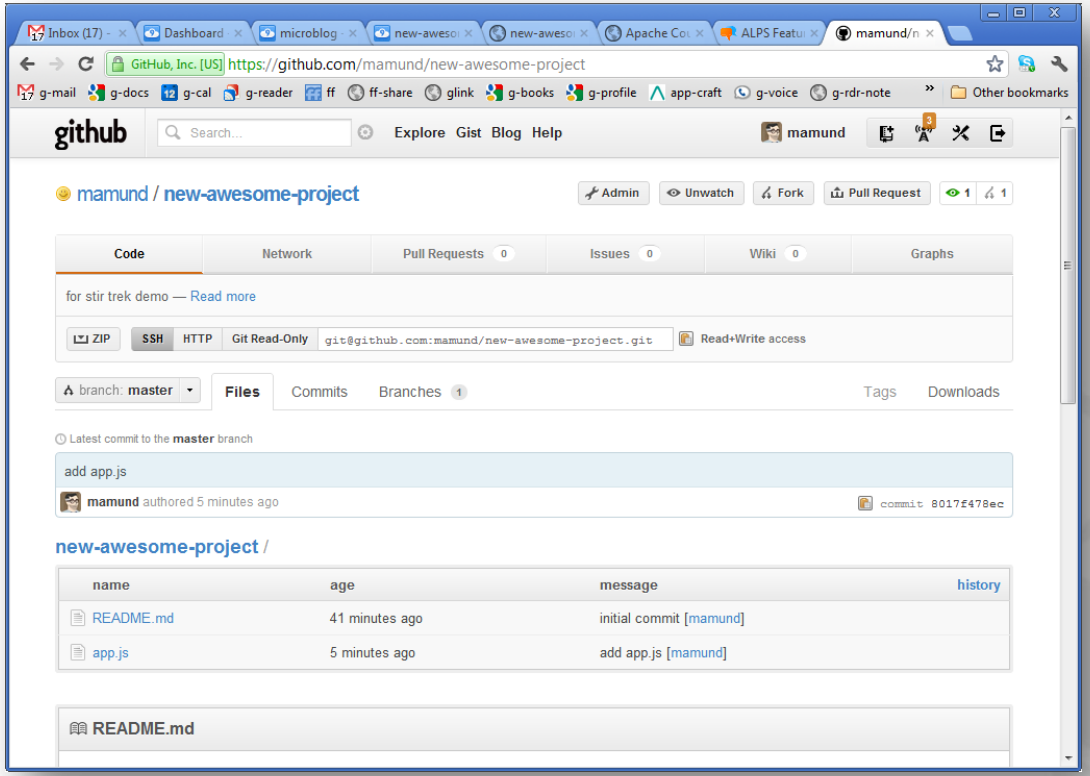
```
#   (use "git add <file>..." to include in what will be committed)
#
# app.js
nothing added to commit but untracked files present (use "git add" to track)
[mamund@cloud9]:/workspace$ git add .

[mamund@cloud9]:/workspace$ git status

# On branch master
# Changes to be committed:
#   (use "git reset HEAD <file>..." to unstage)
#
# new file:   app.js
#
[mamund@cloud9]:/workspace$ git commit -a -m'add app.js'

[master 8017f47] add app.js
1 files changed, 9 insertions(+), 0 deletions(-)
create mode 100644 app.js
```

Push to github to share



LAYER 7 TECHNOLOGIES

Call your friends; lets' code!

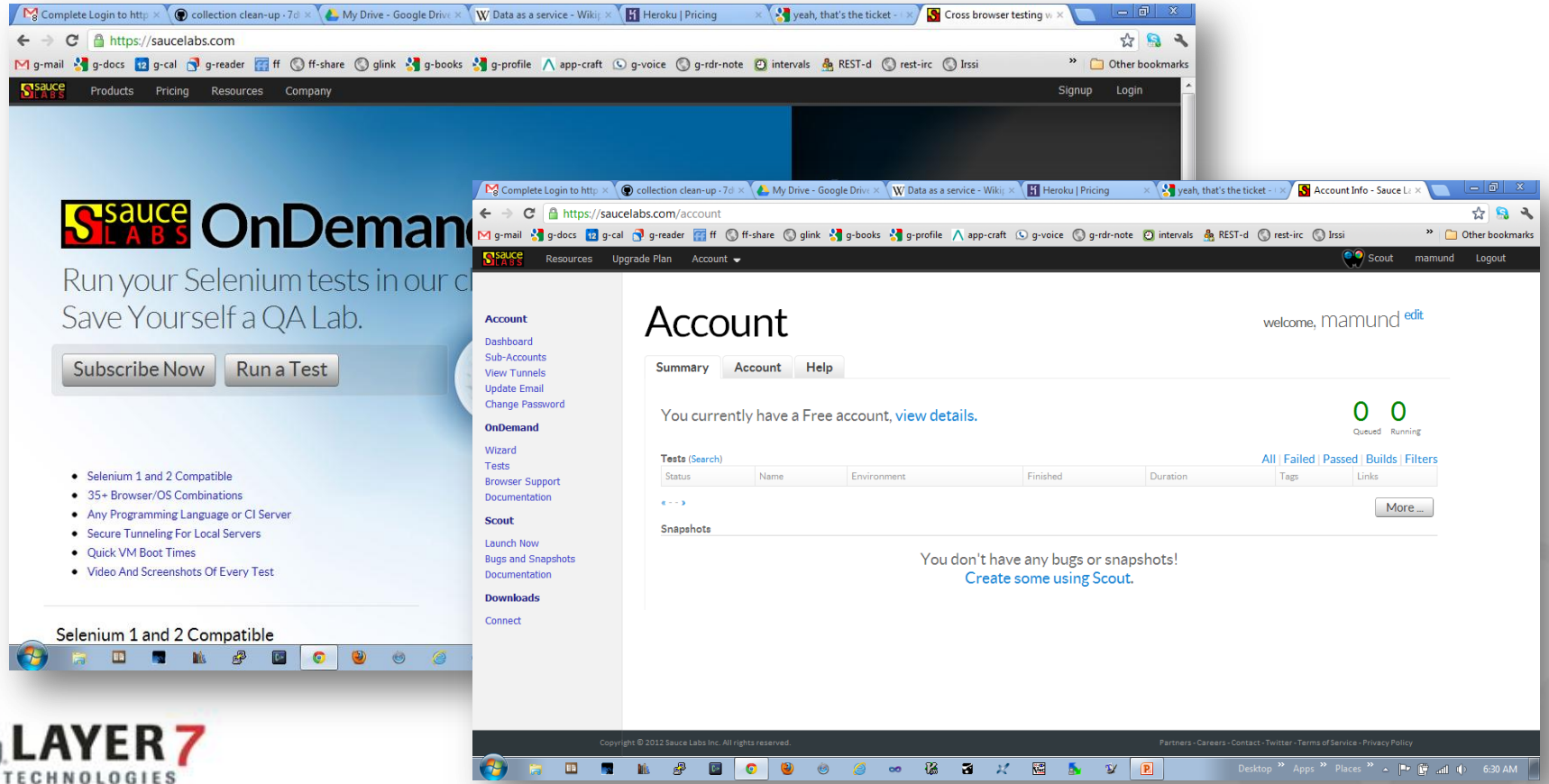


LAYER 7 TECHNOLOGIES

Let’s do some testing…

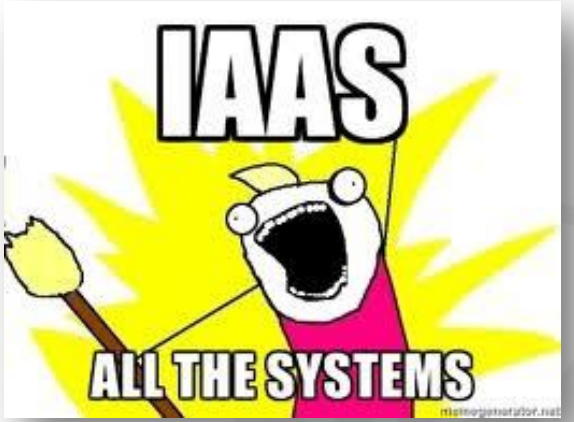
LAYER 7 TECHNOLOGIES

Testing w/ SauceLabs/Selenium



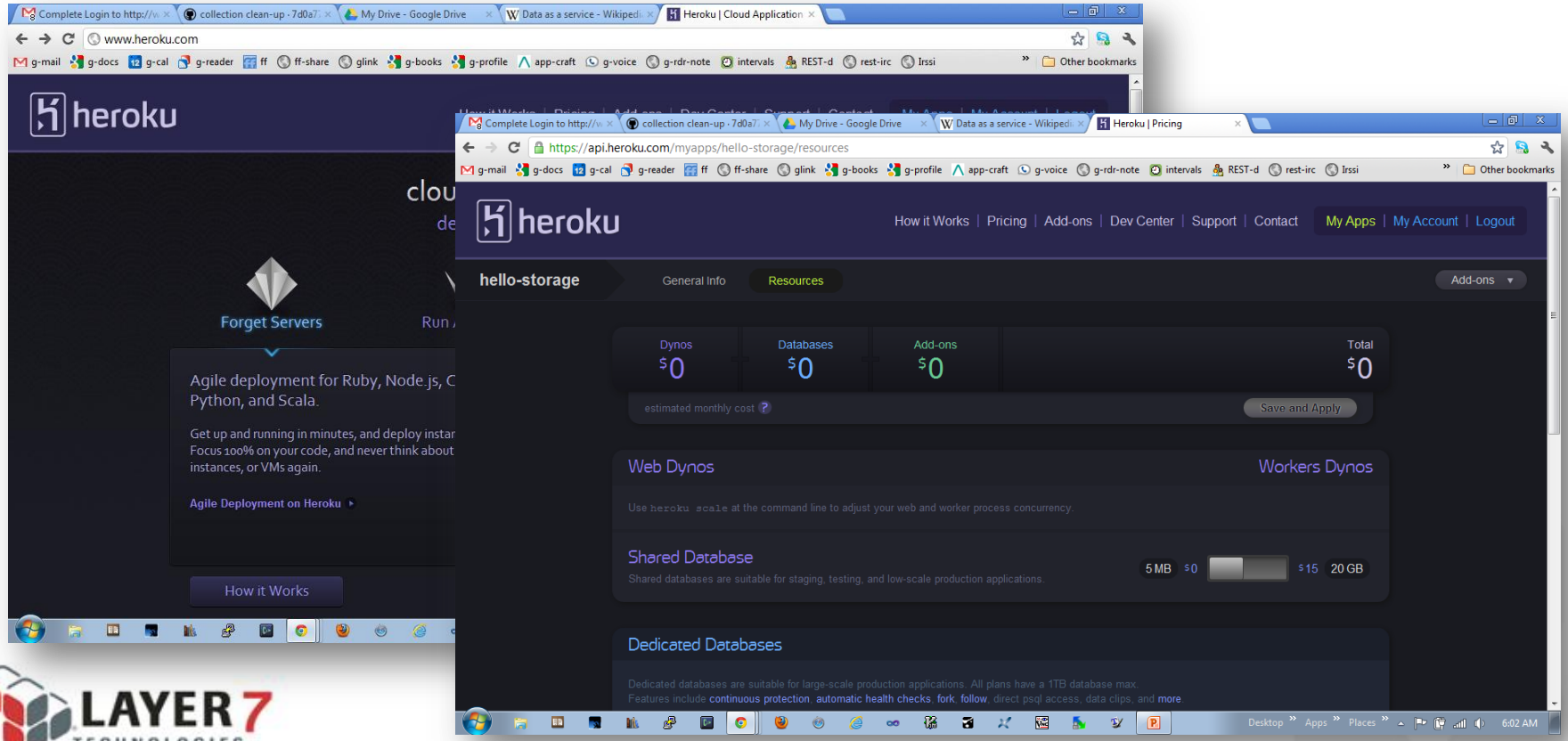
LAYER 7 TECHNOLOGIES

Let’s deploy some servers…



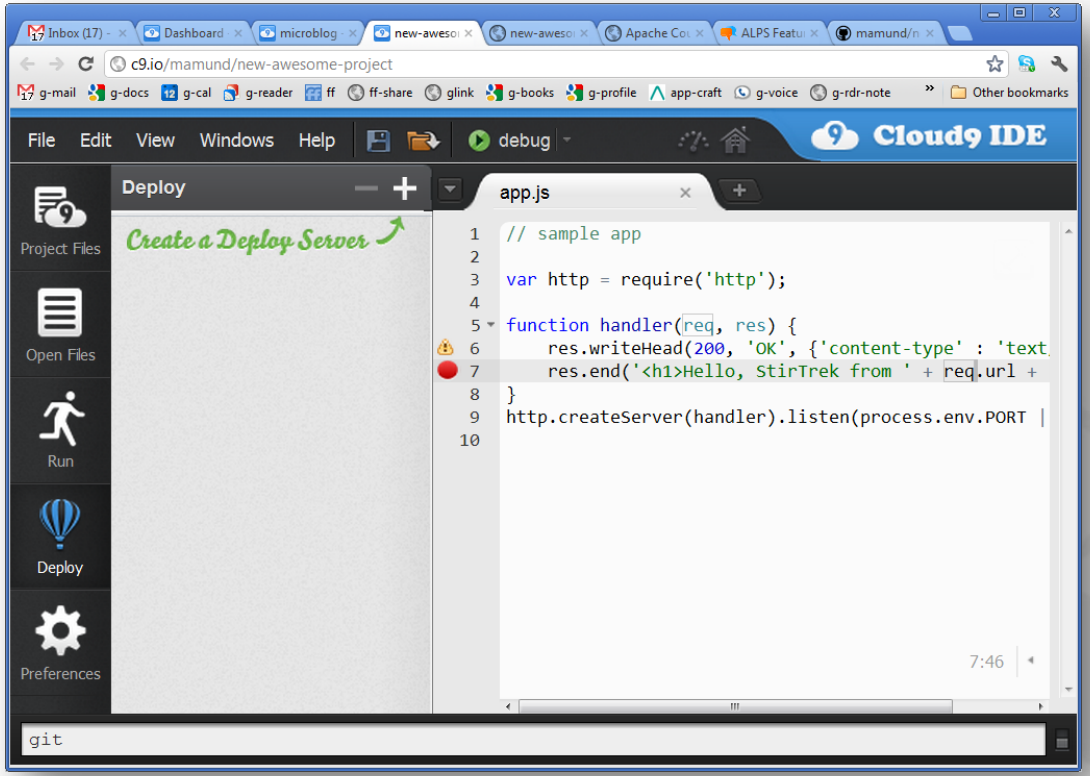
LAYER 7 TECHNOLOGIES

Deployment w/ Heroku

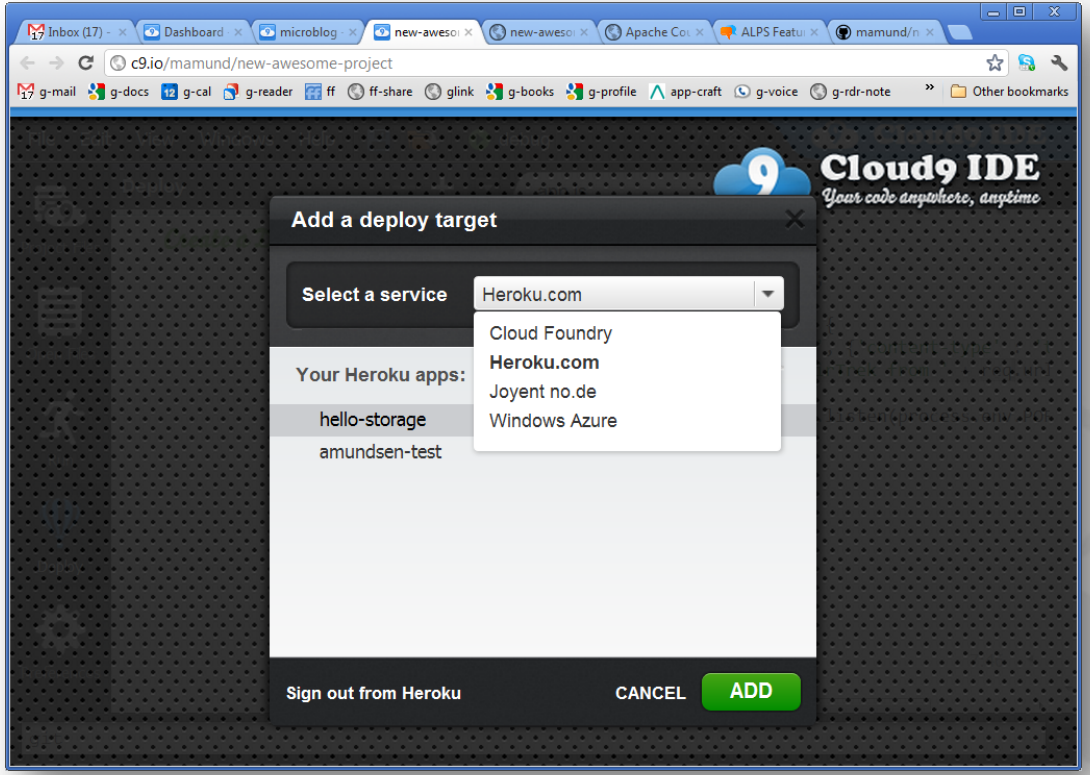


LAYER 7 TECHNOLOGIES

Select Deploy from C9 editor

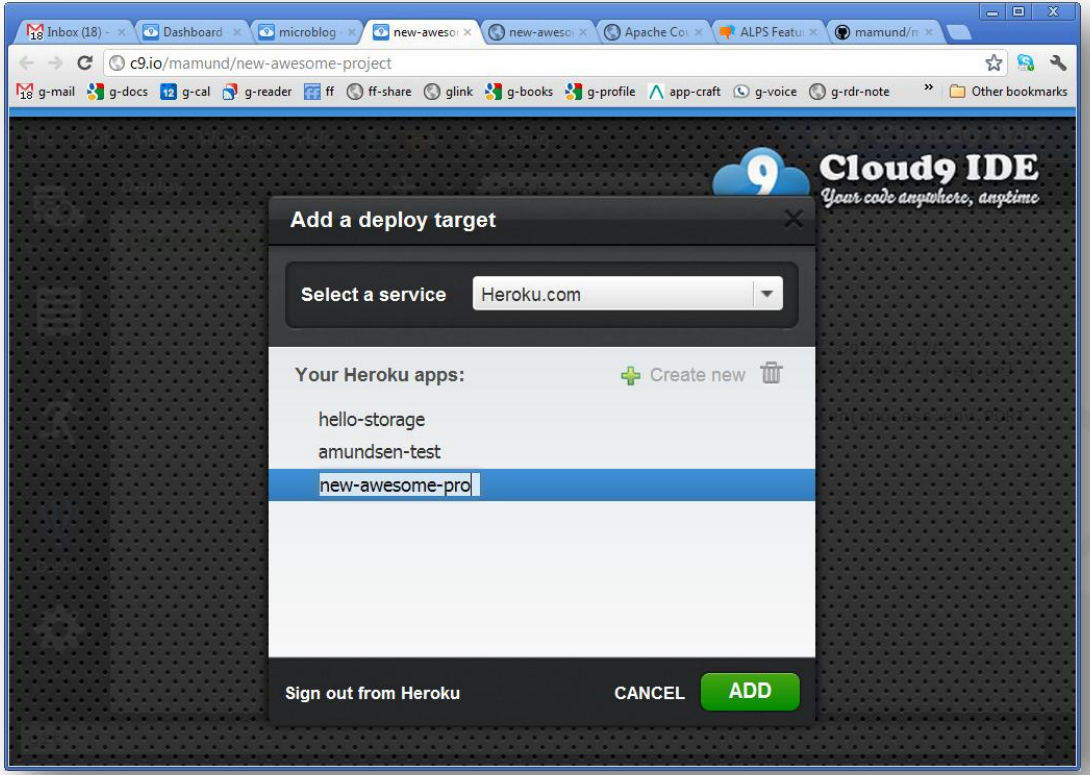


Select target servers



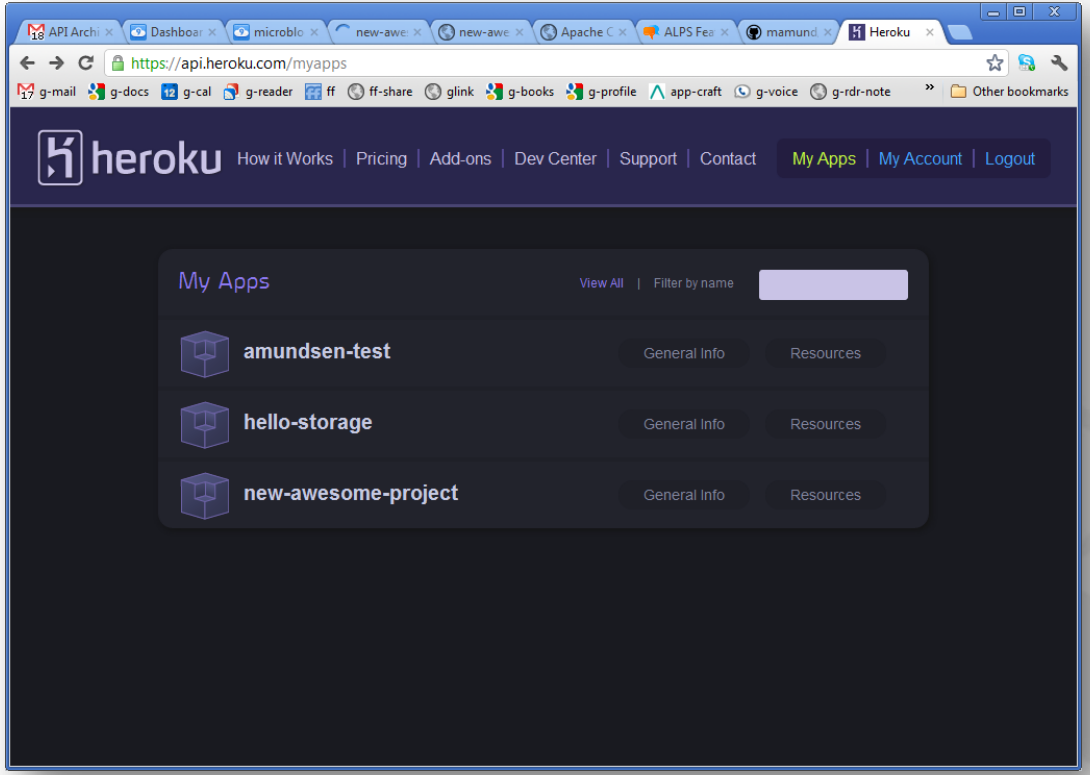
LAYER 7 TECHNOLOGIES

Add a new deployment project



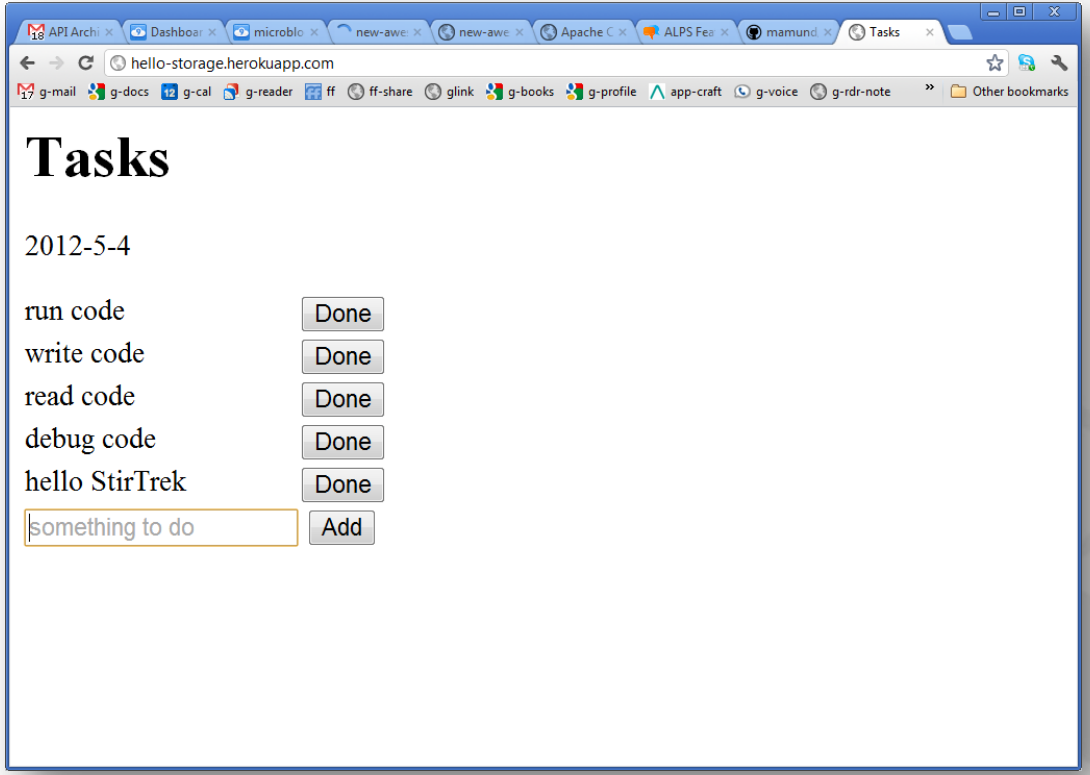
LAYER 7 TECHNOLOGIES

Validate deployment



LAYER 7 TECHNOLOGIES

Soak in the devops goodness.



LAYER 7 TECHNOLOGIES

So, in a nutshell, we got…

LAYER 7 TECHNOLOGIES

The following open source services

- **Programming**
  Cloud9IDE – http://c9.io
- **Data**
  CoudchDB – http://cloudant.com
- **Version Control**
  git – http://github.com
- **Debugging/Testing**
  selenium – http://saucelabs.com
- **Deployment**
  heroku.com

LAYER 7 TECHNOLOGIES

All from a browser;

All from a browser;
cuz it's the future, dude!

LAYER 7 TECHNOLOGIES

Bottom Line…

- Programming the Cloud while ON the Cloud is here already.
- There are lots of cloud services available; most free to start.
- Many offerings are OSS – you can install and run your own!
- It took me a while to adjust, but soon I preferred it.

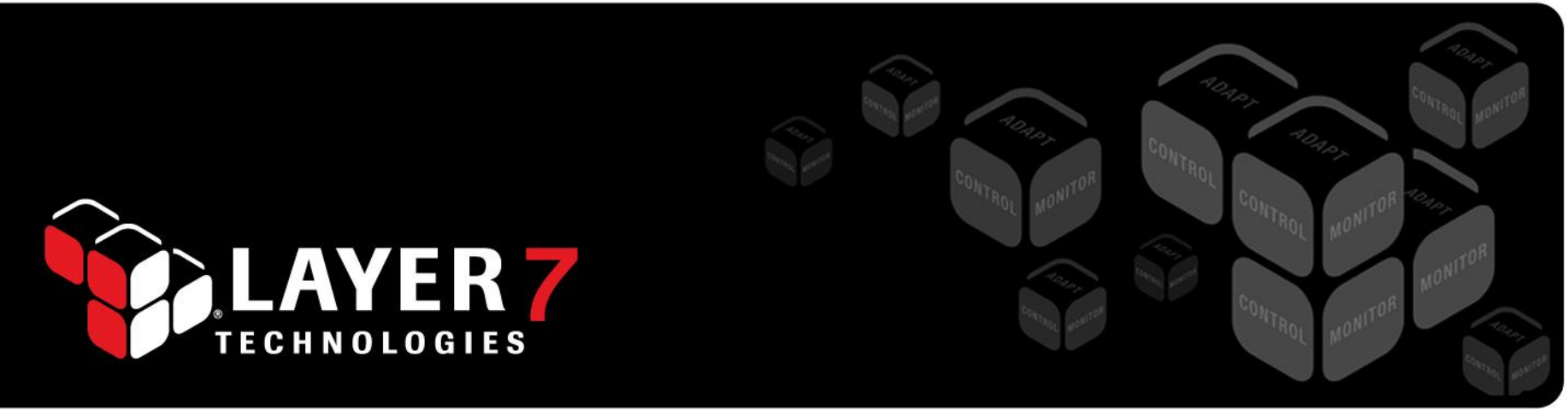
- ***But there's one big caveat….***

LAYER 7 TECHNOLOGIES

LAYER 7 TECHNOLOGIES

My advice is to jump right on in, the water is fine.

LAYER 7 TECHNOLOGIES



Programming with the OSS ‘Cloud Stack’

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  Principal API Architect
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