

# facebook

## Moving Fast at Scale

Robert Johnson

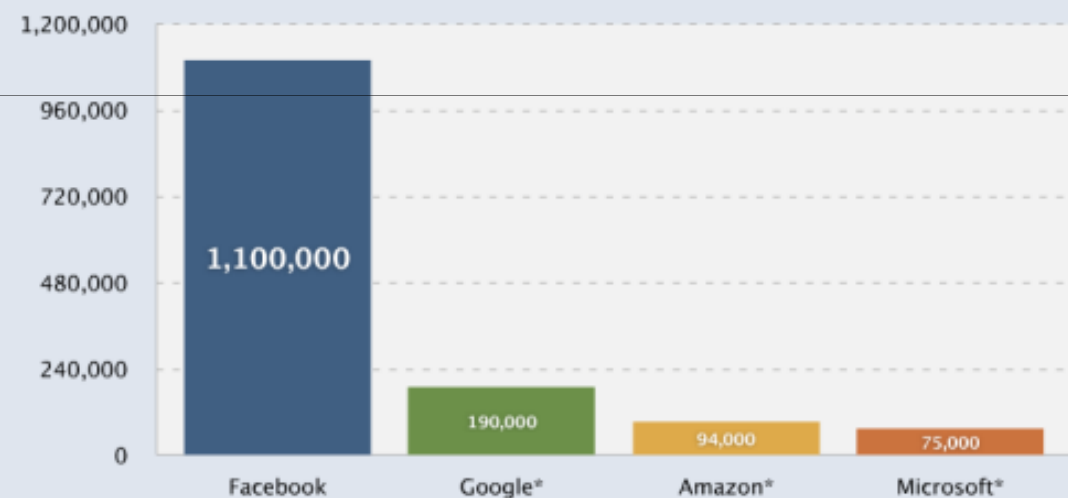
- Fast feedback loop
- Architecture
- Engineer = Dev + QA + Ops
- Hide features
- Monitoring



If I had an idea last night...  
...I coded it up this morning...  
...I got it on the site this afternoon...  
and tomorrow I got data.

In a couple of weeks I've learned as  
much as I would have in over a year in  
a regular system.

### Over 1 million active users per engineer



\* Conservative estimates based on publicly available data



Never block developers  
Give them control  
Tune processes for speed



Do less work  
Build tools  
Work with open source

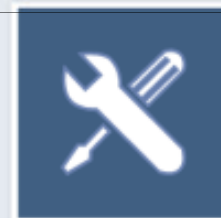


## Tuning the Operating Pipeline

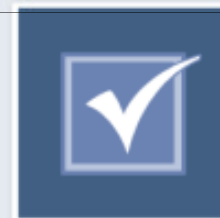
Engineering

QA

Operations



Develop



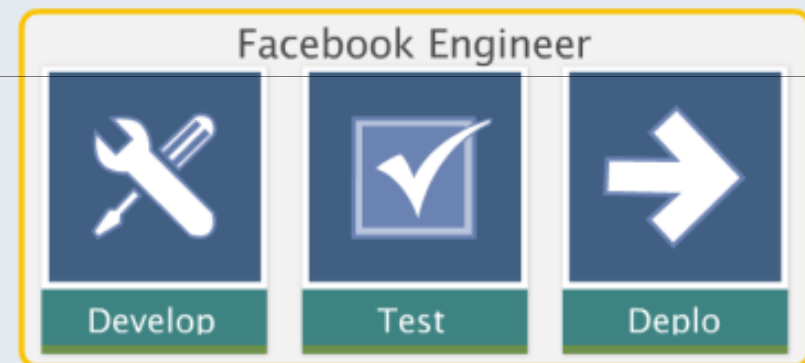
Test



Deplo



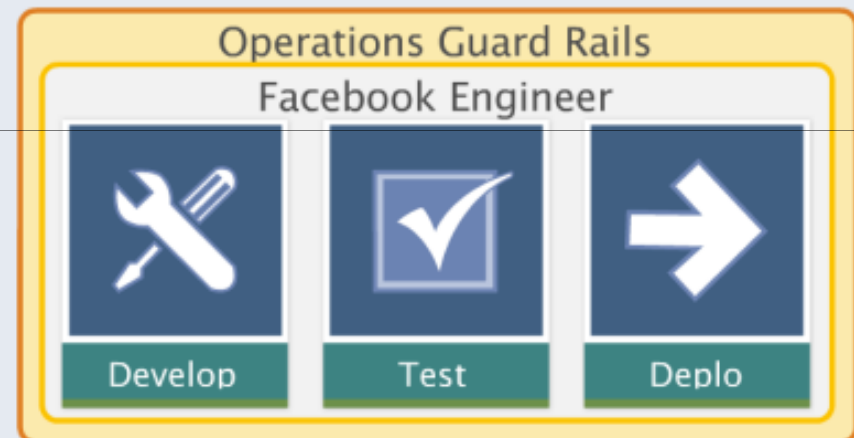
## Tuning the Operating Pipeline





At the end of the day it is the person who writes the code who is responsible for whether or not it works.

## Tuning the Operating Pipeline

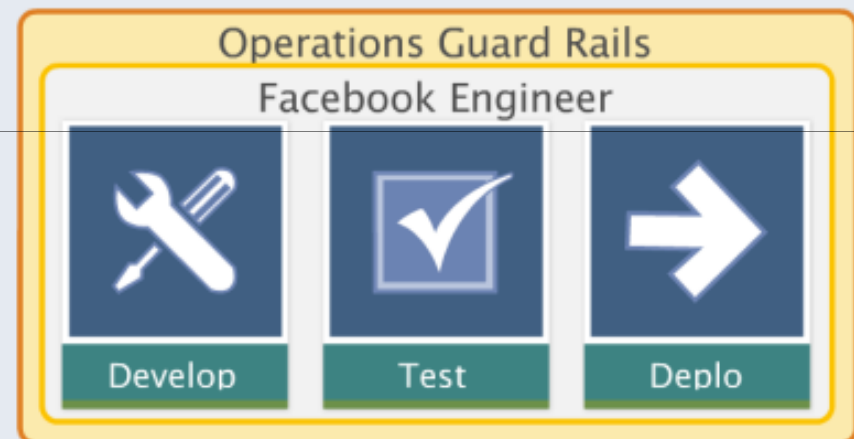






Do not shield developers from problems that happens with their code.

## Tuning the Operating Pipeline







Frequent small changes  
Never a delay waiting for a push  
Easier to isolate bugs



All development in trunk  
Weekly release of trunk  
Daily release of minor changes  
Bug fixes at a moment's notice



## Gatekeeper

Separates deployment from launch

A/B testing

Targeted launches

Dark launches

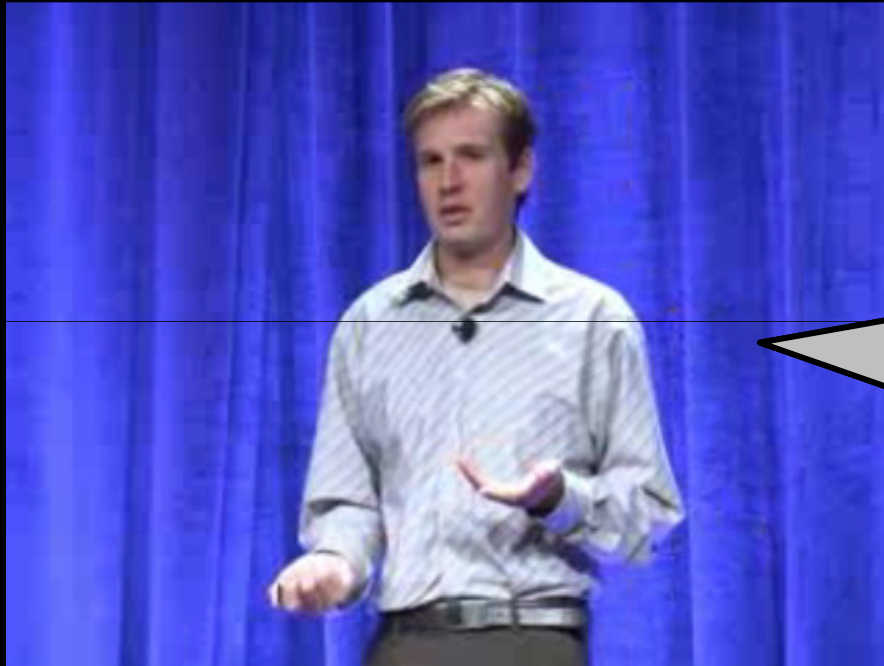
Gradual launches



## Monitoring Tools

- Good monitoring gives a safety net for moving fast





Anyone at the company can go to this GUI and query petabytes of data...

...and it's really not only engineers doing that - business and analyst people as well.

**HiPal: an Online Tool for Querying Hive/Hadoop Data Warehouse**  
Hive Tutorial | Hackathon Wiki | HiPal Training 101 | HiPal FAQ | Upload a File to Hive

**Query**

Table  Start Partition  End Partition  Data Size (bytes): None Cat/Export Data None

Select Columns

+ Join Options

+ Close Group By Options

Enable Group By ☐ enable AggregateMethod  ☐ distinct Aggregation Column

+ Close Where Options

WHERE Clause: (e.g. a.column\_name = 'value')

+ Query Options

Friday, December 4, 2009