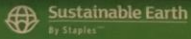


# July 2016 Federal Cloud Computing Summit Flip Charts

# DevOps vs. NoOps: Managing Public Clouds

 Sustainable Earth  
by Staples

## "DevOps" vs "NoOps"

Possibly define what DevOps vs. NoOps really means?

DevOps started as Infrastructure as Code and morphed over 5 years include orchestration, monitoring and culture.

NoOps means you eliminate QA, test, and ops team completely. Development responsible for all activity.

If you outsource ops to say a cloud, its Operations-as-a-Service?

"DevOps is a means to an end", "You don't have to tell people its DevOps"  
Code beats discussion. First w/ working code wins.

Bring the assessors into the cookie kitchen.

Litmus test: Who owns the mission? who are the users?

Get notice very early w/ EC2-S3 controls.

Need to have feedback loop, otherwise you're doing really fast waterfall

①

6022:1111 opening mpt1 p0n0b2 n2: 110012 110012 110012

"0n0b2" n2 "1100b2"

(constraints)

## What are the metrics you use to measure DevOps? and any change

- ▷ Cost
- ▷ Time
- ▷ Quality
- ▷ Schedule

Is code meeting our timelines (dev time & time to market)

Tableau as a tool to monitor, JIRA for tracking sprints  
Measuring ROI as people cycle out (Pcs)

- ▷ Defects, & Test coverage, reuse, velocity
- ▷ Time measurements: development, mean time to deploy, mean time to repair
- ▷ # of security vulnerabilities

Mission impact:  $\rightarrow$  If I came in \$50k under budget but no kids are in park... success?  
How many kids do I bring to the park?

Budget person tells ops people how much a server costs, Developer has to say capacity.  
Get both parties in room: "I only have so much money, what can I get collectively?"  
Mission owner gets to first all parties

Transformational change:  
Functional driven vs. user driven  $\leftarrow$  Servicemen/woman has life event, fills out two forms w/ same data

Cross-functional team from day #1. Measurement of success

1st pass, people think CI/CD, puppet, ... need to think beyond that

# DevOps vs. NoOps: Managing Public Clouds

Build up an API

Brown bags / lunchcons, default to open <sup>NOT just open source</sup>

If you're writing contracts <sup>or other contractors</sup> add 2 hours a week for training  
"Tell the government what you're working on"

Organizational-wide repository that all contractors can see  
Couple this w/ daily stand up, could eliminate other meetings

Buying food goes a long way

Org. learning; sometimes people are adverse to learning

DevOps is not about avoiding failure. It's about embracing failure & failing fast  
It's about feedback (fast) and communication

How do you deal w/ multiple stakeholders?

- Stakeholders have different schedules/cycles. Some are daily/weekly/...
- granularity needs to be standardized
- remind that we all work for same boss, somewhere
- integrated project teams, make them think that it's their idea

If you open source code and consumer/user finds and fixes a bug, user starts to become an owner/stakeholder on your service. sounds

BLAME

It's our fault (blameless culture)

- 1 Shared situational awareness / communication
- 2 acquisition: artifacts that keep a culture fixed (sustainment)

communication: using tools. killing ~~computer~~ computer do the communication  
carry around post-it notes  
Shared document repository

Blame: remind team why we are here (mission). need to build blameless culture  
~~blameless~~ how do you bring contractors together? don't assign blame, maybe do deep dive  
give people an opportunity to own up and make a change  
easier to go to leadership and say "we" made a mistake

Feature-driven contract  $\neq$  DevOps or Agile

Sustainment comes in 2 ways: vendor sustainment & knowledge sustainment

If I do DevOps to push to cloud, federal still needs someone to push the button to deploy. People transition out

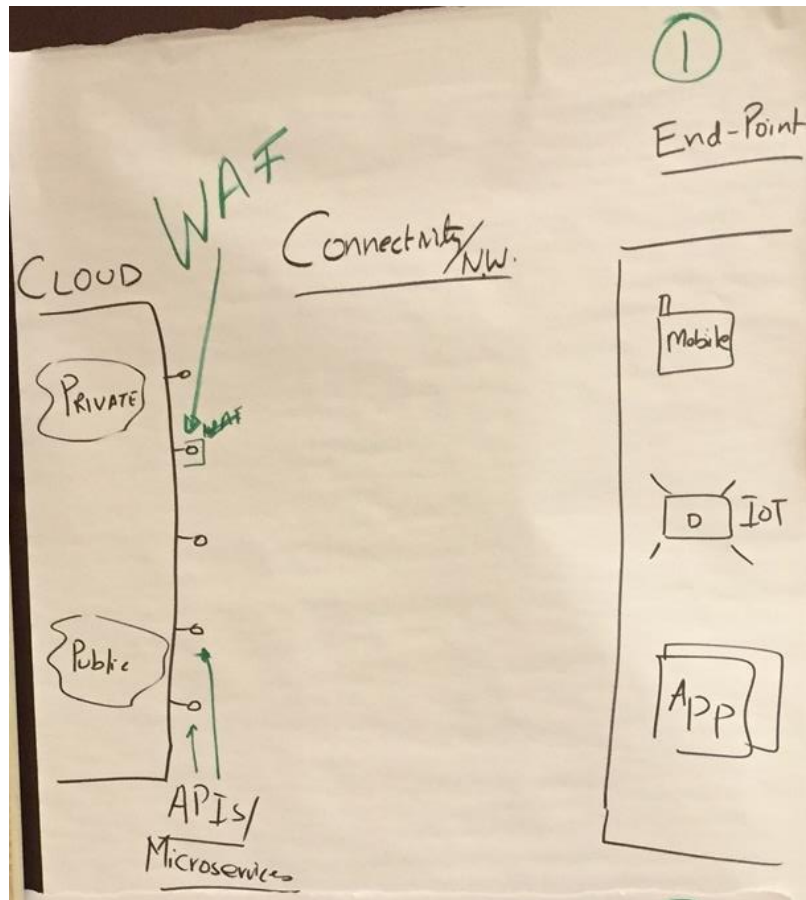
"There is nothing that's self-sustaining"

Find a PM that can outsource schedule, ... so that practitioner can focus on technical quality

Put collaboration & sustainment in contract. Force knowledge transfer

Mark Schwartz Designs for Federal Contracting (it revolution) (4)

# Secure Cloud Access: From APIs to Mobile & IoT Devices



- ① Access from Partners. ②
  - Central Access points (VPN)
- ② How to scale? (M2M)
  - Device authentication <sup>maintaining</sup>
  - Device integrity
  - Human involvement
- ③ Security challenges
  - Temporal
  - MITM attacks in IoT
- ④ Re-architecting applications
  - All EUDs vice client/server
  - WAFs (TLS/SSL)
    - mutual auth, security
    - key mgmt
    - 3rd party (security tier)

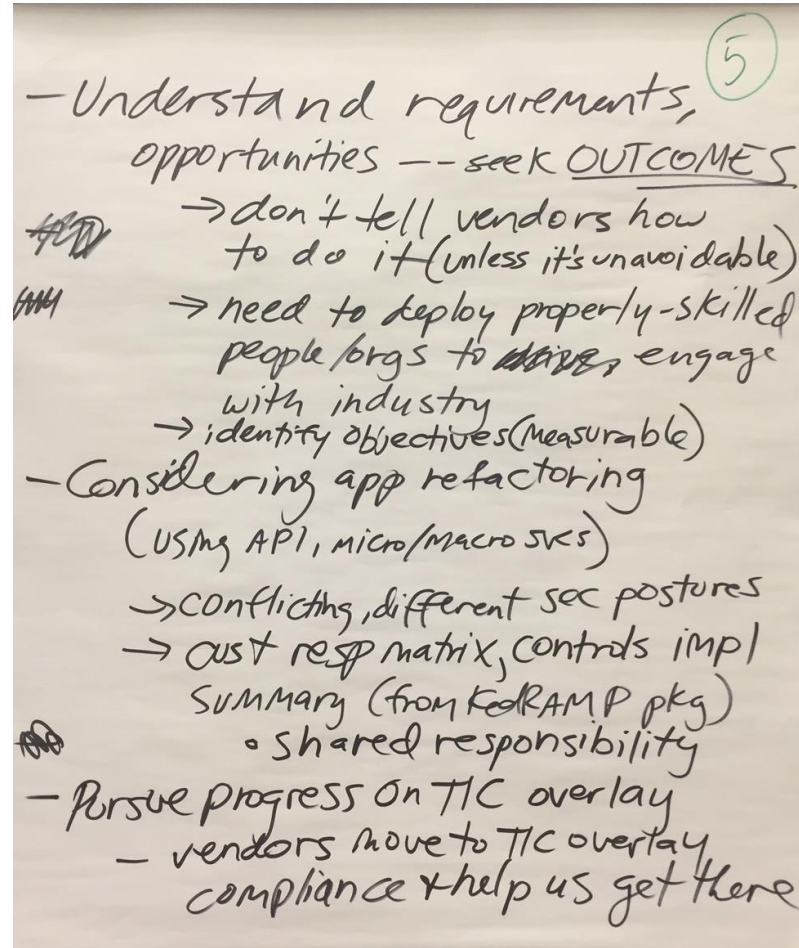


# Secure Cloud Access: From APIs to Mobile & IoT Devices

- \* SDP - SW-defined perimeter
- \* Einstein 3
- (3)
- ⑤ Risk mgmt (not avoidance)
  - Adopt int'l stds (ISO, IEEE)
  - Vendors are onboard
- ④ Statutory, regulatory, legal constraints
  - need to perform forensics, audit
- ⑥ Vendor lock-in
  - Interoperability, portability
  - ~~Backup~~
- ⑦ Balance security, performance/capability
  - Delay built in for security
- ⑤ USG-vendor engagements
  - Govt <sup>influence</sup> ~~drive~~ business models, open implementations, reduced lock-in, interoperability

- ## Solutions, Best Practices, Strategies (4)
- BP
- Pay for what you use
    - change laws, policy
  - Discuss changes to workplace culture
  - Be clear about what we need to protect
    - manage/mitigate risks
  - Synchronizing tech ~~trend~~ + market trends with organizational policies
  - Focus on D.I.T (vice DAR)
  - Polymorphic, SW-defined environment
- \* "This new reality is already here"
- Establish mutually-beneficial relations with large, leading vendors
    - Innovate!
  - Collaborate across ALL agencies

# Secure Cloud Access: From APIs to Mobile & IoT Devices

- 
- 5
- Understand requirements, opportunities -- seek OUTCOMES
    - don't tell vendors how to do it (unless it's unavoidable)
    - need to deploy properly-skilled people/orgs to ~~drive~~ engage with industry
    - identify objectives (measurable)
  - Considering app refactoring (using API, micro/macro SVCS)
    - conflicting, different sec postures
    - cust resp matrix, controls impl
    - Summary (from FedRAMP pkg)
      - shared responsibility
  - Pursue progress on TIC overlay
    - vendors move to TIC overlay
    - compliance & help us get there

# Workload Management for Cost Savings

(8)

- enable Decision Making around workload Migration  
😊
- what, when, where, How
- Small Success (within 1 yr)
- Supporting workloads in Hybrid env.
  - Automation / ordr.
  - Interoperability / portability
  - Bursting
  - Demand / capacity
  - DR Example
- Need for OCM
  - communication
  - changing culture
  - cost saving techniques

(2)

- Personal experience; Cost increased because of increased use due to accessibility/ease of use
- VA does math #s but earned value  
criticality of
  - Assessment of workloads  
e.g. Health
- Have to build out all associated costs (phone ex.)

Intros

VA: - Benefits of cloud effort underway

- VAA/VBA
- Enterprise level underway



# Workload Management for Cost Savings

- Model for VA: Must find a key measurement of "why" (#3)
- for VA - reduce O&M
- Army reserve challenge - determining billable hours
  - Private? Public? PII
- DISA: Cloud models - which?
  - Privacy/Security requires private
  - Hope for a meaningful set of measures to assess costs
  - Agencies always will need a private cloud
  - Scalable - all private to all public

- DoD/VA Joint Pgm office (#4)
  - PII/PHI concerns
- IRS - private storage by-the-drink model; solved the problem of how to manage
- Tech refresh opened up opportunities (Sun)
- Storage - anchor - how do we burst into another cloud? (Hybrid)
- Air force looking at cloud; evaluating milcloud; constraints: security
- GSA - white paper (initial): "probably no cost savings" w/ cloud



# Workload Management for Cost Savings

#5

- VA example
  - probably a lot of intangibles
  - probably success
- Need
  - (1) Arch
  - Laws/regulations
  - (3) Governance
  - Communication - complex multi-matrix - stakeholder list
  - Criticality/suitability
- Approach
  - first year - move lift & shift
- Need to show cost savings in 1st year
  - End-of-life/UC?
  - Apps? HW? Infra?
  - Data retention?

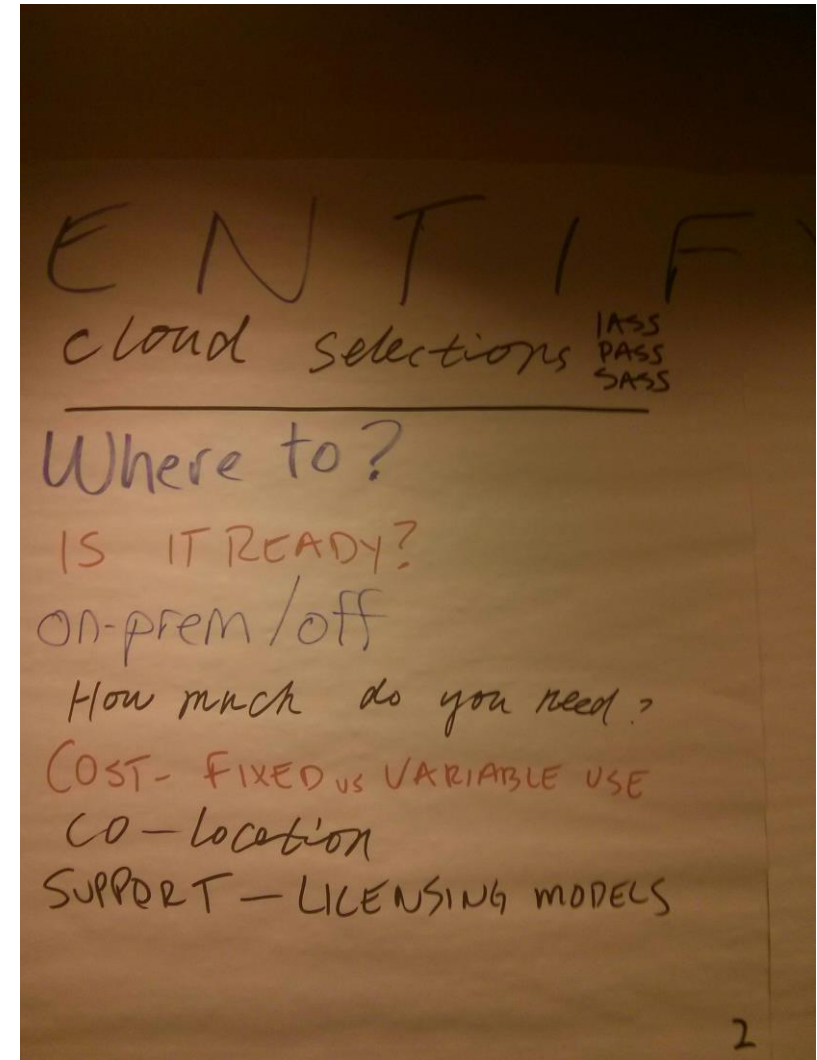
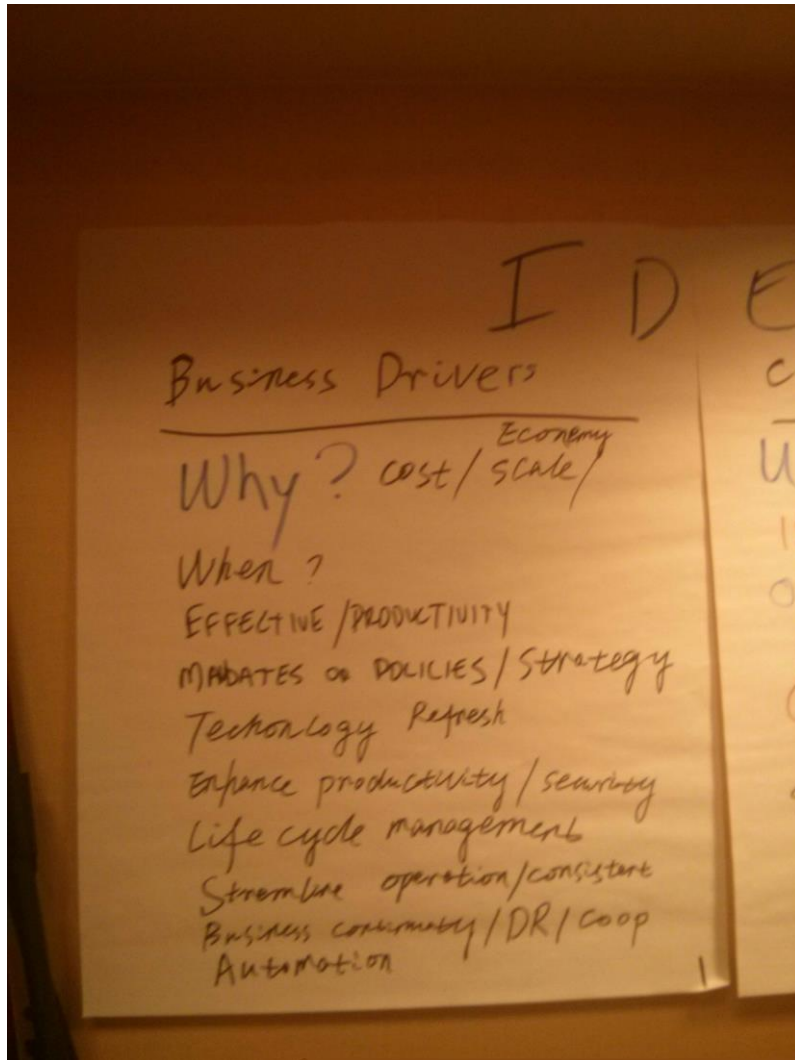
#6

- Small, less complicated, minimal PII - quick wins
- Probably telecom
- FedRAMP/~~ISMA~~ <sup>App security</sup> slow migrations down
- Meeting regularly with the IG - ensure they feel agency is meeting requirements
- Interoperability: remains a challenge (pharmacy example)
- OCM - are there VA initiatives? Yes; engaged now <sup>noted</sup> POTUS memo ("PRO-PSI"?) for change

# Workload Management for Cost Savings

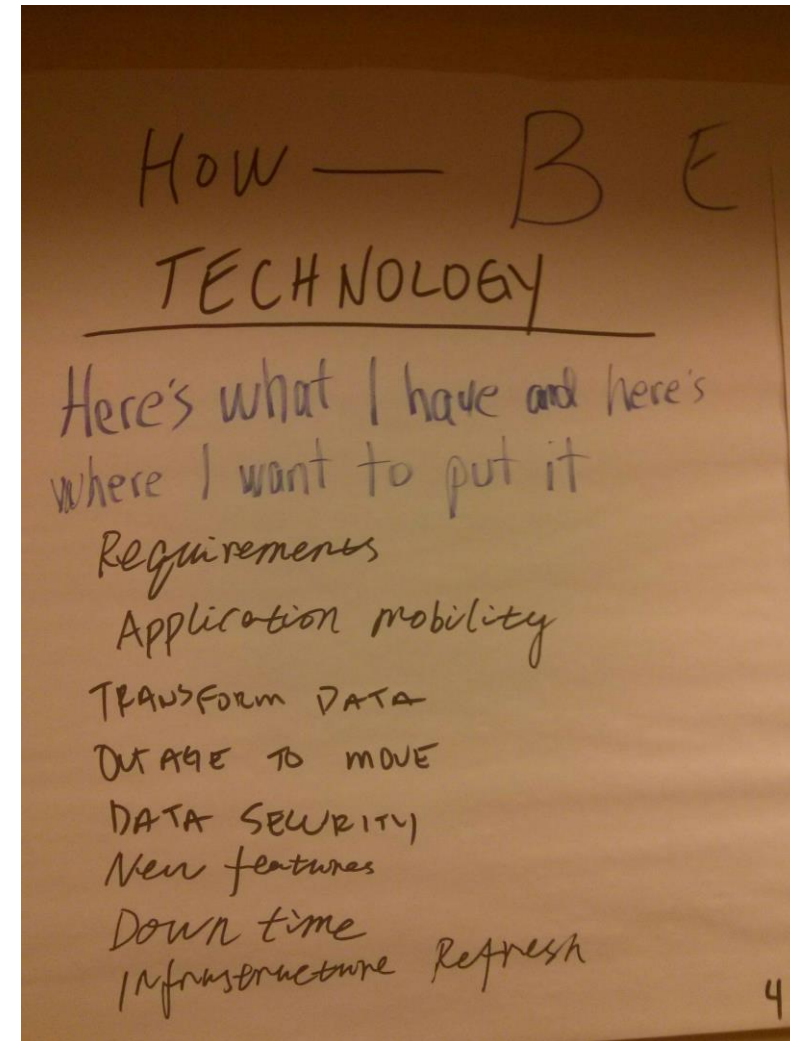
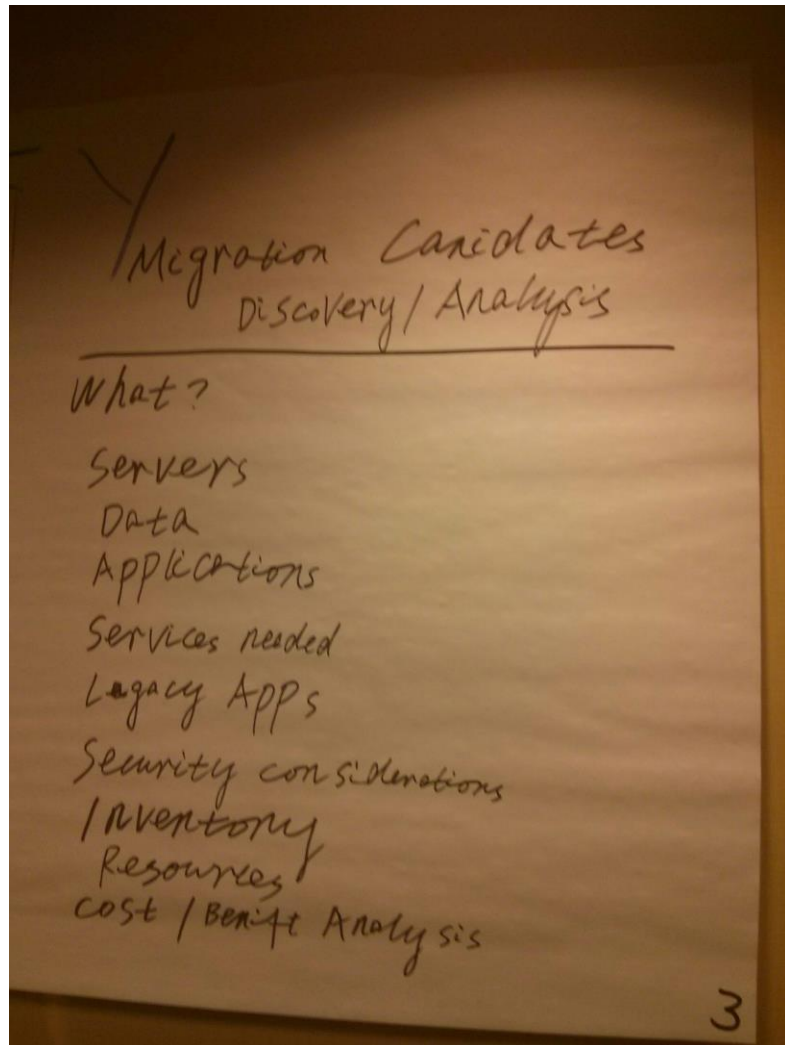
- Need buy-in (7)
- DoJ use case: Azure - saved over \$1M
  - Process mgmt; migration of workloads
  - Security was a big issue
- Private cloud - may over-buy
- Lift-&-shift - may not optimize
- Shutting down unused → leads to savings
- DR use case
- ~~DR~~ NIH use case - centralized IT dept. - private makes sense

# Cloud Category Management

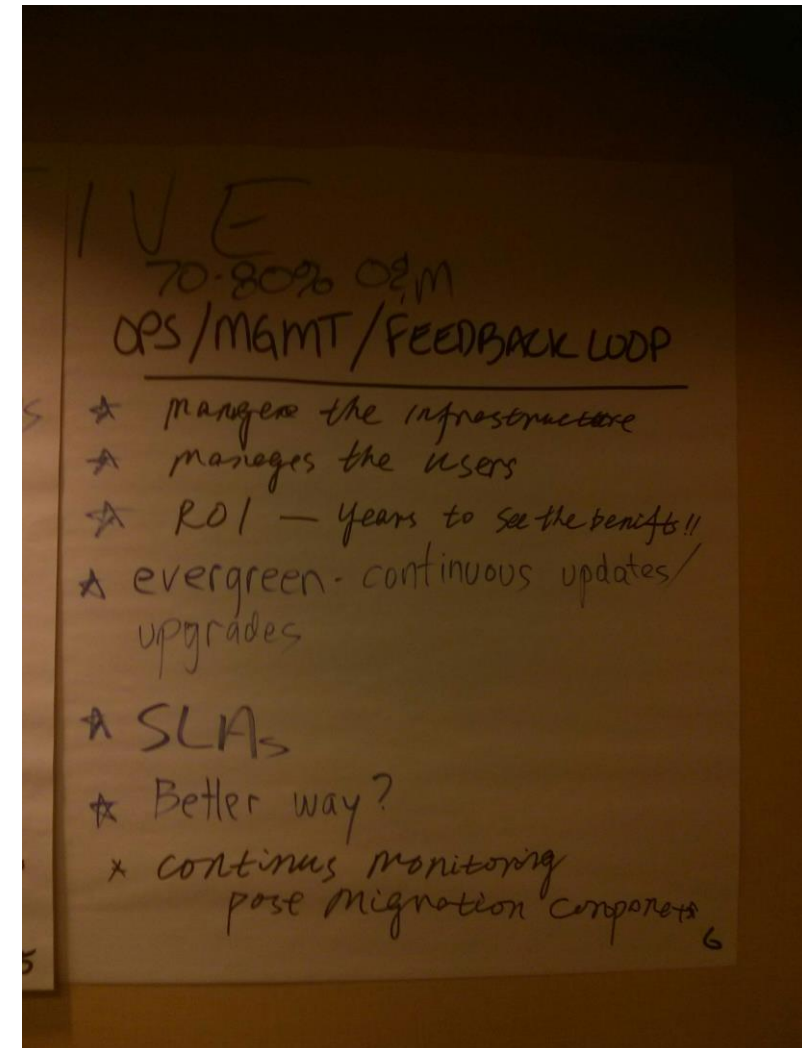
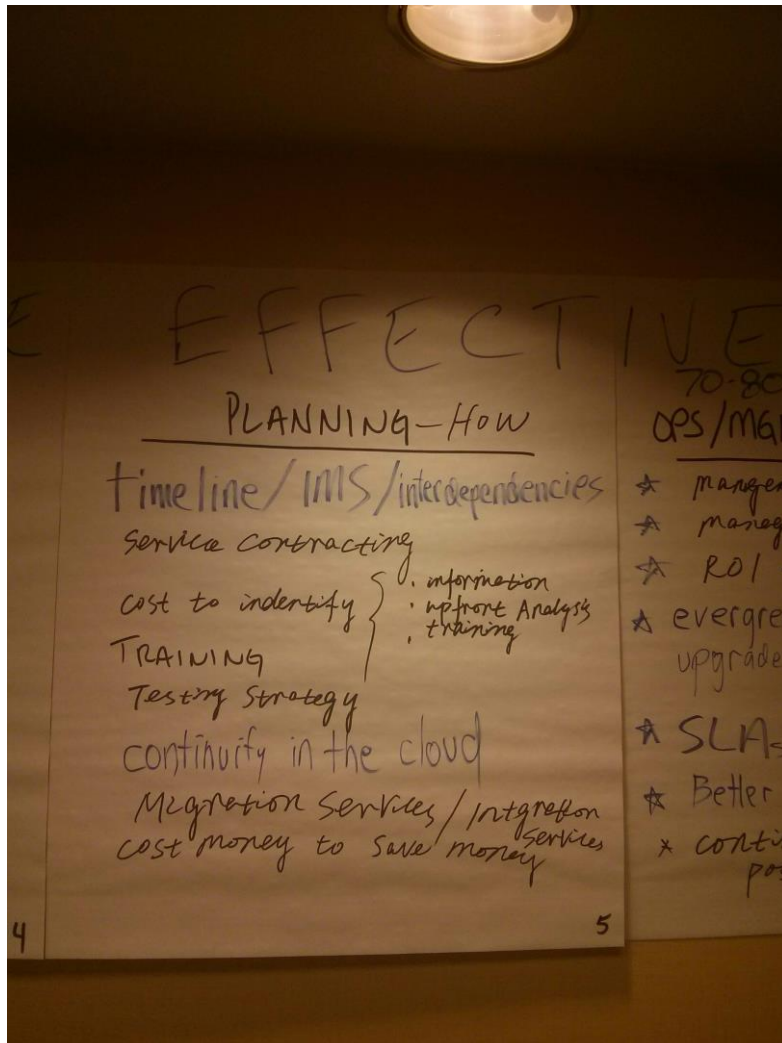




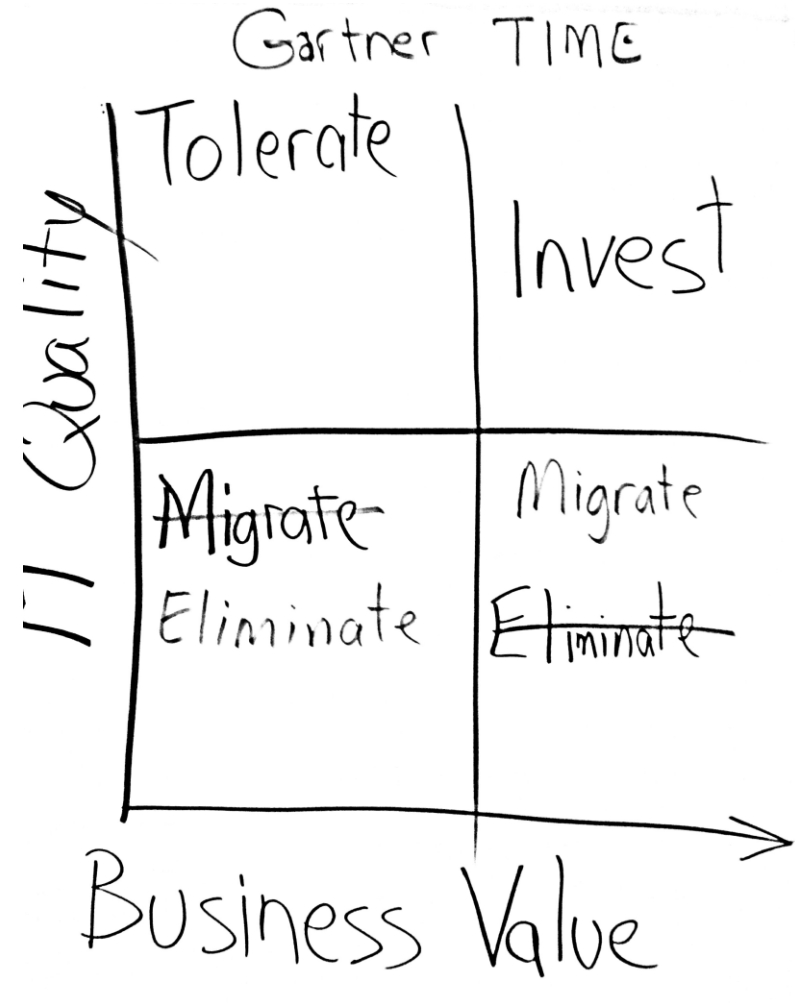
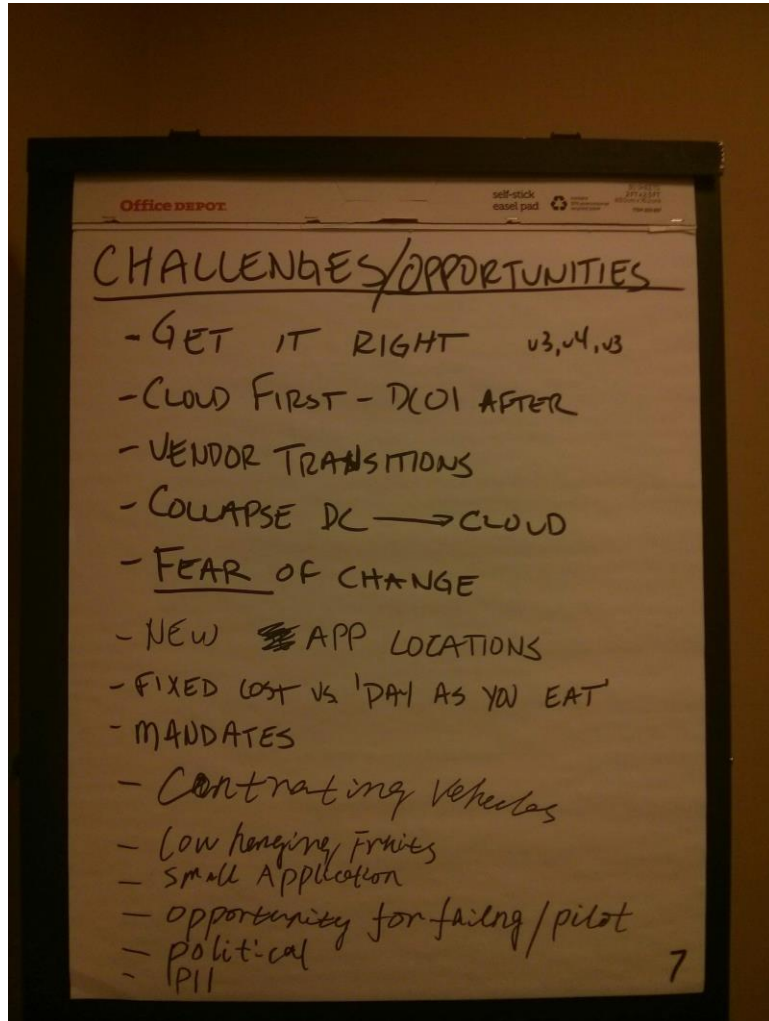
# Cloud Category Management



# Cloud Category Management



# Cloud Category Management





# Cloud Category Management

