Artisanal to Mechanized: Ops @ Evernote

Alexei Rodriguez, VP of Operations  
@alexeirrm
We want to help the world remember everything, communicate effectively and get things done.
We want to help the world remember everything, communicate effectively and get things done.
Evernote App

Twitter

Android

iOS

Windows

Web

Mac

WinPhone

Wednesday, October 16, 13
<table>
<thead>
<tr>
<th>Adoption</th>
<th>Oct 2008:</th>
<th>Sept 2013:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>500,000 Users</td>
<td>75,000,000 Users</td>
</tr>
<tr>
<td></td>
<td>0 3rd Party Dev</td>
<td>30,000 3rd Party Dev</td>
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<tr>
<td></td>
<td>7 Apps</td>
<td>3,000+ Apps</td>
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Servers

October 2008: 20

Today: 600
Prime Directive: Protect the User Data
• 14 Ops team members
• Distributed team: West Coast, East Coast, Europe
• Responsible for all aspects of the service
• >80% time spent on project work
Server Types

Application & caching
- NoteStore shards
- Couchbase cluster

Processing
- Image recognition
- Business card scanning
- PDF rendering

Storage
- UserStore database
- WebDAV file servers

Integration
- Email gateways
- Twitter ‘bot
- WeChat ‘bot
Users & their data
“self contained”

Structured Data
MySQL

Unstructured Data
File Based Storage

Index
Lucene
<table>
<thead>
<tr>
<th>Artisanal</th>
<th>Mechanized</th>
</tr>
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<tbody>
<tr>
<td>- Hand Crafted</td>
<td>- Automatic Devices</td>
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<td>- Unique</td>
<td>- High Volume</td>
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<td>- Consistent</td>
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<td>- Economies of Scale</td>
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Artisanal to Mechanized
The “ities” of Operations
Evernote - Circa 2011

**Artisanal**
- Hand Crafted
- Unique
- Low Volume
- "Craftsmanship"
- "Spendy"

**Mechanized**
- Automatic Devices
- High Volume
- Consistent
- Reproducible
- Economies of Scale
**Evernote - Circa 2012**

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- Hand Crafted
- Unique
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**Mechanized**
- Automatic Devices
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Evernote - Circa 2013

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- Hand Crafted
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Mechanized
- Automatic Devices
- High Volume
- Consistent
- Reproducible
- Economies of Scale

Perfect
Android “Spikes”

Throughput

Current Connections

New Connections

L7 Requests

- Bits/sec
- Conns
- Connections/sec
- Transactions/sec

- L4
- L7
- IP-NAT
- SSL
- Total

Outages

Mon 12:00 Mon 18:00 Tue 00:00 Tue 06:00

Mon 12:00 Mon 18:00 Tue 00:00 Tue 06:00

Mon 12:00 Mon 18:00 Tue 00:00 Tue 06:00

Mon 12:00 Mon 18:00 Tue 00:00 Tue 06:00
Things we love

• Nagios + MK Livestatus + Nagui = Achievement Unlocked
• Graphite
• PagerDuty
• Puppet / Fabric / Ansible
• Percona XtraBackup
Futures

- Guard Rails
- Inventory
- Network Automation
- Multi-Colo
- Open Sourcing
.... one more thing

AMAA