



Google
Developers



(Running) Google on Google

How Google's IT Keeps Pace with Google's Growth

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Corporate Engineering?

Corporate Engineering at Google

Running and Scaling IT At Google

- We are [Google's IT](#)
 - Support Every Continent But Antarctica
 - Real Estate To Payroll To Help Desk To Massage Scheduling To Bus Fleets



Build, Buy and Share

- Integration and Evaluation
- Talking To The World
 - HangOuts on Air
 - Hosting User Groups
 - Conference Speaking
 - Office Hours, IRC, Mailing Lists
- Open Source Code

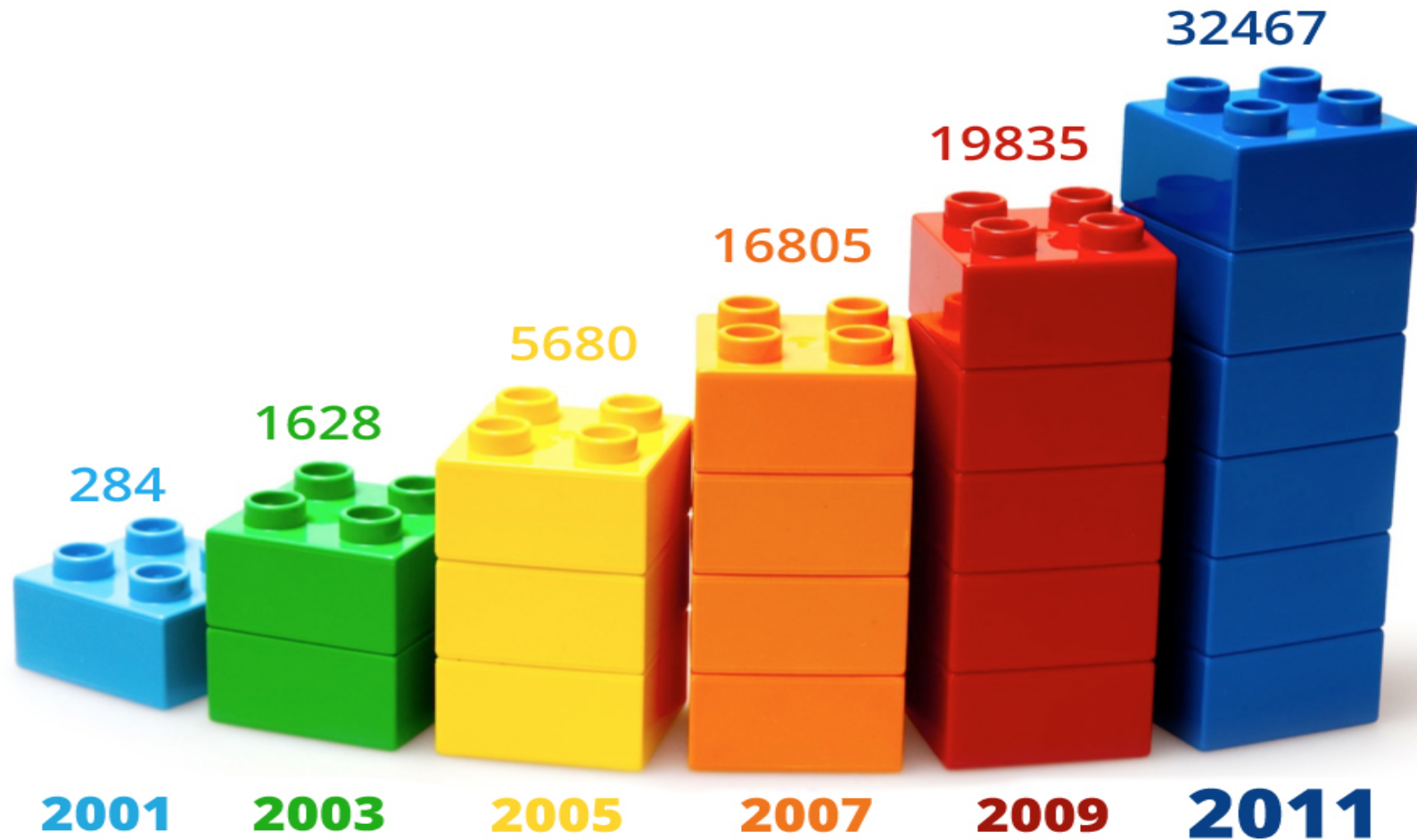




Scaling A (Google) Company

Going From Start-Up To Enterprise

Our Challenge: More People, More Places



Google Headcount Growth



We've Got A Ticket To Ride





Keeping Googlers Productive



Google Techstop Online



One of Google's TechStops



Choice and Transparency



Scaling With Google Apps



2006



We should be “the best leadership model in the industry for enterprise use of cloud computing”

– Eric Schmidt



The Scales of Scaling





The Ganeti Project @ Google

<http://code.google.com/p/ganeti>

Ganeti @ Google



<http://code.google.com/p/ganeti>



Open-source versus Internal Components



?



Interacting with Ganeti

```
node1# gnt-cluster init -s 192.0.2.1 example-cluster
node1# gnt-node list
Node  DTotal DFree MTotal MNode MFree Pinst Sinst
node1  1.3T  1.3T  32.0G  1.0G 30.5G    0    0
node1# gnt-instance add -o debootstrap -s 256m instance1
node1# gnt-instance list
Instance Hypervisor OS           Primary_node Status  Memory
instance3 xen-pvm     debootstrap node1      running  128M
node1#
```

```
$ curl https://CLUSTERNAME:5080/2/info
```

```
import urllib2
f = urllib2.urlopen('https://CLUSTERNAME:5080/2/info')
print f.read()
```



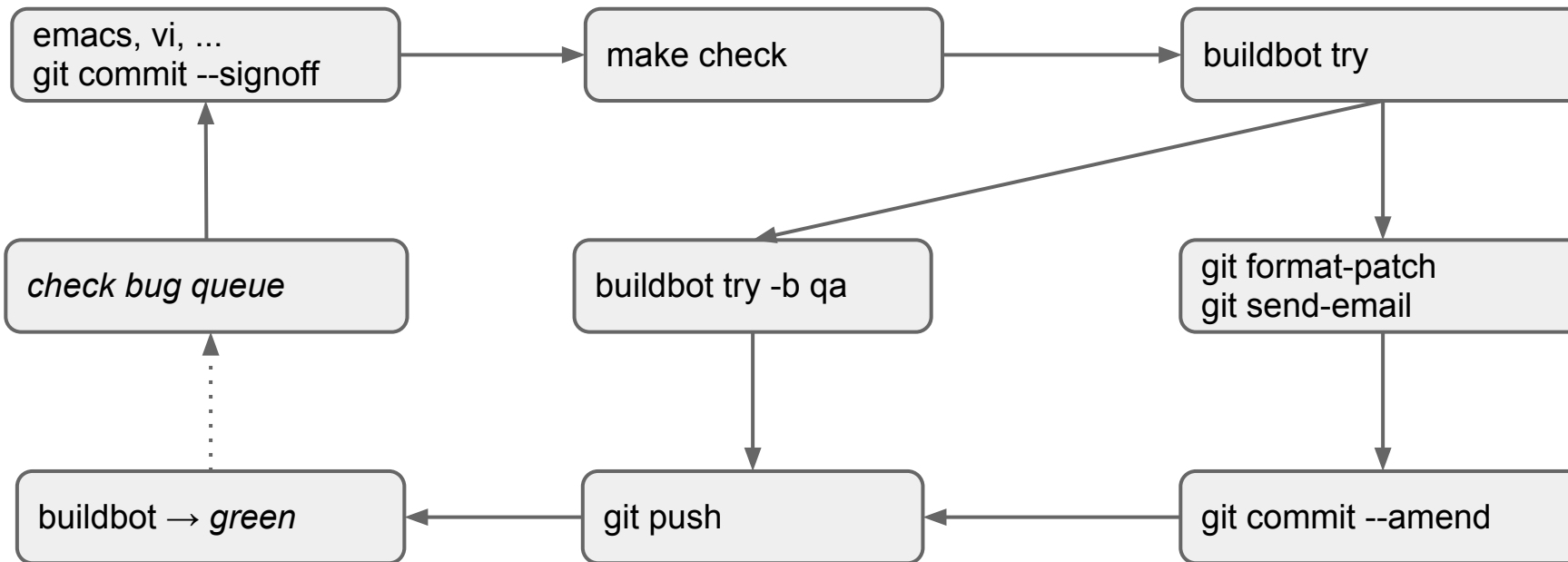
Ganeti Deployment Model



```
git tag -m "Release Ganeti version 2.6.0" v2.6.0
```



Ganeti Development Model





Scaling To Support Google

<Thank You!>



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+Jeff Bates on Google+ +Iustin Pop on Google+

Appendix Data Points

- CorpEng Open Source Projects
 - Simian: <http://code.google.com/p/simian/>
 - Cauliflower Vest: <http://code.google.com/p/cauliflowervest/>
 - Munki: <http://code.google.com/p/munki/>
 - Compliance Management: <http://code.google.com/p/compliance-management/>
 - Ganeti: <http://code.google.com/p/ganeti/>
- Videos For More Information:
 - Coding For Cloud: <http://goo.gl/nt6Ox>
 - Corp Apps on AppEngine: <http://goo.gl/m1XzN>
 - Life@Google IT Teams: <http://goo.gl/7cYSf>





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