

# Python Can Survive in the Enterprise

A Look at Python at AGI

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# A Common Misconception

“Python doesn't scale.”

# We Humbly Disagree

- It scales just fine
- AG Interactive uses it for:
  - Web services
  - Enterprise systems
  - And much much more

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# Who is AGI?

- Online social expression websites (primarily ecards)
- “Organic” brands as well as prominent partnerships
- Python since 1996
- Homegrown web app from before the “framework wars”



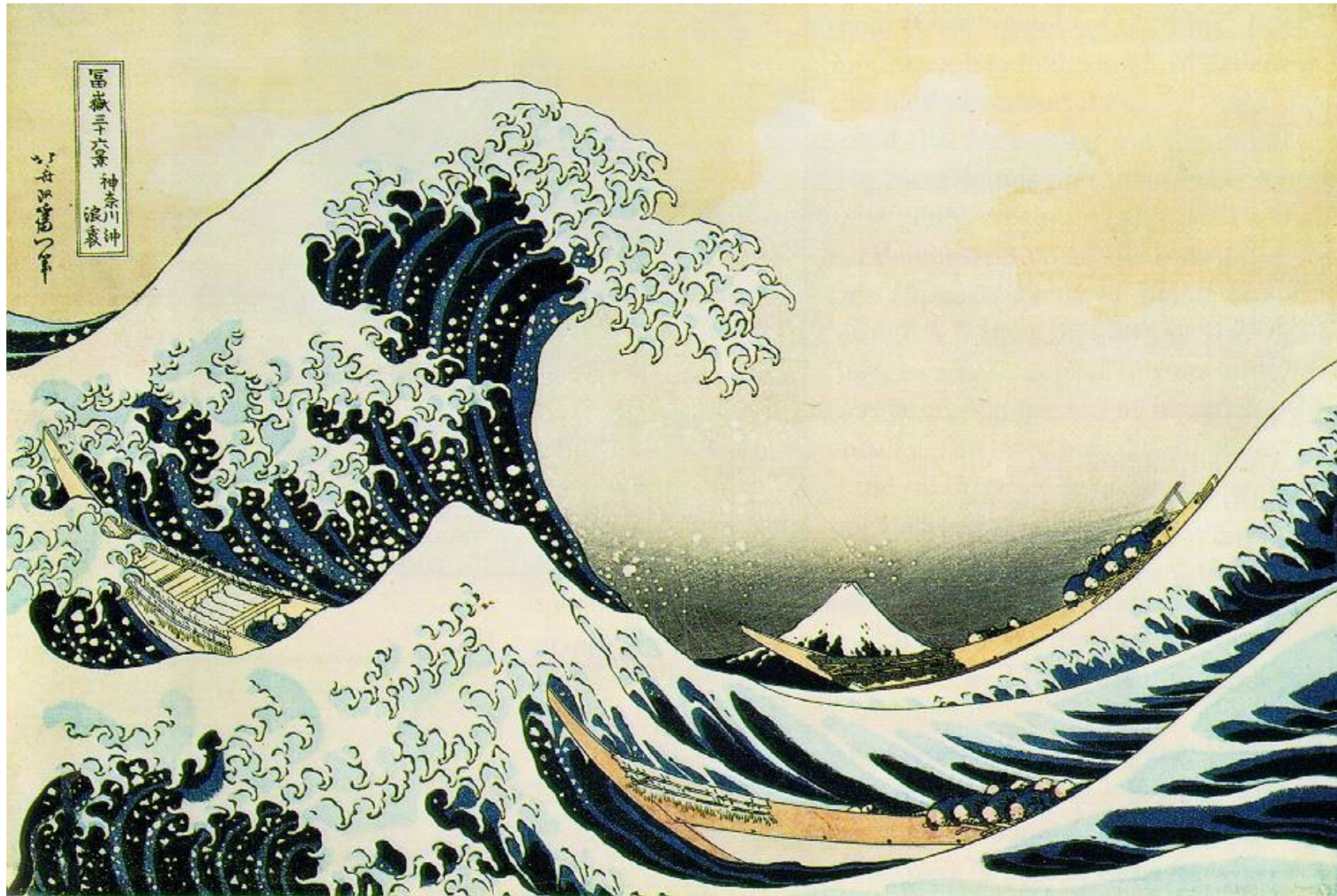
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# Traffic

- Over 200M greetings sent per year
- “Gloria Gobbler” ecard got over 30M views— seen by one in ten Americans
- Traffic is largely holiday-driven (predictable spikiness)
- Typically 11M uniques/month... can peak into 35M+ with holiday promotion
- 4-5M page views/day... can peak at 90M+
- Can push a sustained 1.7Gb/s on peak days



# Traffic



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# Busy Environment

- 14 Python developers
- 300+ projects per year
- 4700+ .py's
- 760,000+ lines of code
- Hundreds of production Linux servers

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# Application Architecture

- Multi-tier internal infrastructure
- Heavy use of web services
- Forking, multi-process application server
- Load balancing of connections to internal services
- Use of mod\_python



# Other Python Applications

- Code build system
- Code deployment
- Monitoring systems
- Content management
- Many cron jobs and daemons

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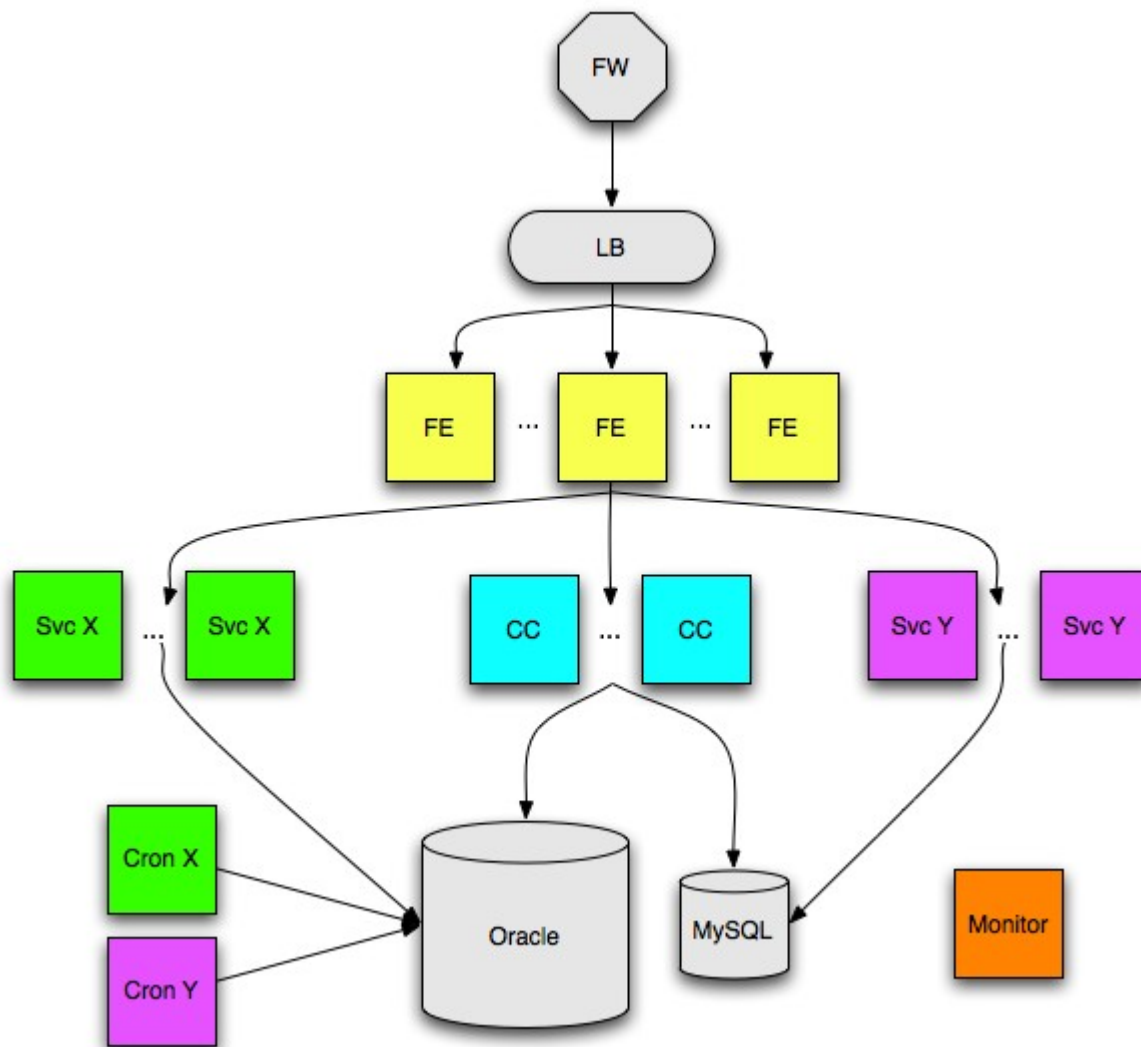
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# Databases

- Oracle on big hardware
- MySQL on lighter hardware for caching infrequently changed product data
- All connections are persistent
- Load balancing of DB connections
- MySQL connection failover
- Custom ORM (Object-Relational Mapping)

# Architecture in a Nutshell



# Sites and Applications

- "Virtual hosting"
  - Multiple sites
  - Co-branded sites
- Common/unified codebases
- All code everywhere
- Variable substitution system for UI, integrated into template engine

# Handling the Traffic

- Multiple levels of data caching
  - Data
  - Images
  - Even full pages
- Graceful degradation
  - Turn features on/off on the fly
  - Core user needs still fulfilled



# The Dark Ages

- Python chosen by original contractor (amk, are you out there somewhere?)
- We've used: 1.4, 1.5, 1.5.1, 1.5.2 (until 2005!)
- Why so many Python modules?
  - A Java guy planned our “OO strategy”
  - One class = one module
- Duplicated a lot of now-standard things
- Giant monolithic chunks of unshared code
  - Lots of duplication
  - Maintenance nightmare

# The Wheels of Progress

- Moved to shared codebase
- Apache has almost completely replaced Netscape Enterprise Server
- Moving to more current releases of Python
- Updating code to new idioms
- Starting to embrace “not invented here” to improve productivity, phase out wonky duplicate code
- Starting to move to MVC (Model-View-Controller) paradigm
- Starting to experiment with Twisted

# Upgrading Python

- Upgraded from 1.5.2 to 2.3.3 on Feb. 3, 2005
- 15-20% performance boost with just the new interpreter alone
- Achieved incremental performance gains by moving to 2.3.3 constructs
- Bytecode incompatibility presented issues
- Upgrade required dual deployment
- Next step: move to 2.4.2 and rejoice!

# What Can AGI do for Python?

- Advocacy
  - PyCon sponsorship
  - This presentation :-)
- Contribute to or adopt useful projects
- Hosts the Cleveland Python group every other month
- Future presentations and papers detailing how we scale Python

# Reasons to Love Python

- Lets us work quickly
- Lets us get a lot done
- Facilitates change
- Adapts to whatever challenge comes along
- Evolving in useful directions for the enterprise
- The price is right :-)
- Makes sure the business—and our users—have a good outcome
- Scales as well as you can design



# Thanks!

- Questions?
- Contact us?
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  - [mpirnat@ag.com](mailto:mpirnat@ag.com)
- <http://www.python.org/pycon/2006/papers/36/agi-enterprise.pdf>

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