Puppetlabs and the state of configuration management automation

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Puppet Labs At-A-Glance

quick stats

2005  founded
~9 million downloads in last 12 months
~10 million total nodes under management
80,000+ registered users
~60,000 nodes in largest deployments

$86 million capital raised

awards & recognition

The Wall Street Journal
Network World
InfoWorld
The Register
Businessweek
TechCrunch

investors

KPCB
Google Ventures
Radar Partners

CISCO
VMware
Amazon Web Services
OpenStack
Juniper Networks
True Ventures
# Current IT Management Challenges

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Agility</td>
<td>60%</td>
<td>Of IT managers are <strong>not</strong> satisfied with the speed at which IT responds to business needs</td>
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<tr>
<td>Reliability</td>
<td>$72,000 / hr</td>
<td>Cost of downtime due to manual errors and configuration drift</td>
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<td>Productivity</td>
<td>48%</td>
<td>Of IT professionals spend <strong>50% or more</strong> of their time on basic administrative tasks</td>
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<td>Shadow IT</td>
<td>36%</td>
<td>Of employees have already used “unapproved” cloud services</td>
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<td>Insight</td>
<td>93%</td>
<td>Of IT professionals <strong>cannot</strong> answer “What changed?” when an outage incident occurs</td>
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Sources: Gartner, Kaseya, Harvey Nash, Vanson Bourne, Evolven, InformationWeek
Legacy approaches weren’t sufficient

**custom one-off scripts**

```bash
for i in $(cat host.cfg) do
    ssh user@$i uname -a
done
```

**“all-or-nothing” solutions**

- Not reusable across different applications or operating systems
- What happens when original author leaves?

Pre-cloud, -virtualization, -DevOps solutions
- 12+ month deployment cycles
- Only 13.5% of customers are “Very Satisfied”

Sources: THINKstrategies/FrontRange
Rise of Virtualization & Cloud Driving IT Automation

Linear increases in admin costs with server count...

...is unsustainable with virtualization and cloud ...

... requiring increased investment in IT automation

Sources: Gartner
Puppet Automates IT Infrastructure for Sysadmins
Lifecycle management for heterogeneous IT environments

**application stacks**

*Application Code & Data Middleware*
- Java
- C#
- JBoss
- Microsoft .net

*Operating Systems*
- Red Hat
- Windows

*Physical & Virtual Nodes*
- VMware
- Amazon Web Services

**it management stack**

*IT Automation*
- Discovery
- Provisioning
- Orchestration
- Configuration
- Reporting

*Monitoring* | *Help Desk*
---|---
*Asset Management* | *Service Catalog*
*Billing* | *Capacity Planning*
What’s Different About Puppet Labs’ Approach?
Treats infrastructure-as-code to define and automate systems and applications

**define**
“Ensure Apache is installed, configured, and running”

**compose**
“Ensure a LAMP stack on top of RHEL”

**automate**
“Stand-up a LAMP-on-RHEL stack on 100 nodes, and then enforce configurations”
Puppet delivers real value where it’s needed

Customers see **10x – 100x Improvement** in agility, productivity, & insight

**PayPal**

SLAs improved from 3 weeks to **30 minutes**
to deliver OpenStack infrastructure

**SONY**

>**100% increase** in deployed applications

while keeping headcount constant

**TransUnion**

**280+ servers** per system administrator

vs 19 using BMC Bladelogic

**Google**

**Over 50,000 systems managed**

Up to 5,000 systems per system administrator

**Costco Wholesale**

**Cycle time dropped from 4 weeks to 3 hours**
Market leaders in every industry benefit from Puppet

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<th>financial</th>
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<th>internet</th>
<th>tech</th>
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<td>University of Phoenix</td>
<td>Hershey's</td>
<td>Nike</td>
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Accelerating Adoption & Growing Community

'puppet' in job listings

Ranked #6 on Indeed.com’s “Top Job Trends”

puppet forge content downloads

1,000,000th download
July 2013

7,000+ community members

Attendees
We Are the *De Facto* IT Automation Standard

**cloud automation**
- Amazon Web Services
- VMware
- Google Compute Engine
- Windows Azure
- OpenStack

**distros & operating systems**
- Debian
- Scientific Linux
- SUSE
- AIX
- CentOS
- Ubuntu
- Solaris
- Oracle

**integrations**
- IBM
- BMC Software
- Right Scale
- Nagios
- Juniper Networks
- CA Technologies
- Cisco
- F5
- NetApp

**devops leadership**

Gartner: Cool Vendors in DevOps, 2012

Q&A: Puppet Labs CEO Kanies Explains How DevOps is Shaking

www.cm.com/.../q-a-puppet-labs-ceo-kanies-explains-how-devops-is-sha...
Puppet Forge: 2,100+ Pre-Built Automation Solutions
Over 4,800,000 downloads of free, community-contributed configuration modules

Operating System Resources
- rpm
- ssh
- users
- ntp
- sudo
- ldap

Applications
- Apache
- Java
- Windows Server
- Tomcat
- Nagios
- MySQL
- Splunk
- WordPress
- JBoss

Virtual & Cloud Infrastructure
- openstack
- Xen
- Windows Azure
- KVM
- VMware

Network & Storage Devices
- Cisco
- Juniper
- NetApp
- F5
Innovation & Reliability: Open Source & Puppet Enterprise

Environment for Nurturing Innovation
- 7,000+ members
- Latest technologies
- Rapid release cycles
- ~1000s of changes / week
- Community support (IRC, forums)

IT Automation for Business-Critical Apps
- Commercial-only functionality
- Single integrated solution
- Graphical User Interface
- Installer & upgrader
- QA’d & security hardened
- Performance tuning
- API guarantees
- Support & maintenance
- Training & services
Any questions?
Puppet Enterprise Scalability

• CERN
  – Conseil Européen pour la Recherche Nucléaire
  – European Council for Nuclear Research

  – Founded 1965
  – 25km campus
  – LHC is 27km long!
Puppet Enterprise Scalability

• Protons go around the LHC 11k times per second
• Detectors at 4 points capture 1pb data (40 million images) per second
• Farms of several thousand computers filter data before centralised storage
• Store 25pb per year. Will grow to 35pb. Would like to keep for 20 years
Puppet Enterprise Scalability

• Computer centre has 64k cores of white box machines
• 64k disk drives. High failure rate
• 45000 tapes = 73pb storage
• Batch processing offloaded to grids:
  – 200 subcentres
  – 1m jobs each per day
Puppet Enterprise Scalability

• Historically had unique scalability challenges
• Managed with scripts and home grown tools

• Moved to Google style toolchain:
  – Puppet, Openstack
  – 100 cores for Puppet Master
  – Managing 15k Hypervisors, 300k VMs