

# System Administration Automation in High Scale

Ozgur Demir

Yet another Conference  
1 October 2012 Moscow

# Scaling



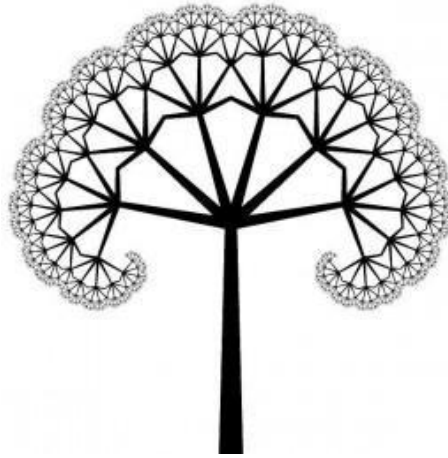
- 1996
- Single server for many services
- Increase capacity by upgrading the server hardware
- Scale up

# Scaling



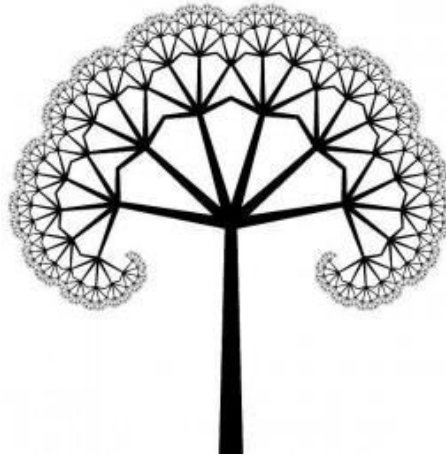
- Towards 2000
- Scale up fails
- Distribute load between cheap servers

# Scaling



- 2007, JibJab
- All servers working for one application
- Load balancing for each function
- Caching

# Scaling



- 2007, Facebook
- Simple servers to handle 50 million users
- Multi-layered load balancers
- Scale out

# Scale Out Environment

- Remote Pre-Boot Environment Access & Power Management
- Provisioning
- User Management & Authentication
- Monitoring
- Log Management
- Distributed Execution

# Remote Pre-Boot Environment Access & Power Management



- BIOS, EFI, UEFI
- ILO, DRAC

# Provisioning



- Asset management
- PXE, kickstart
- DNS, DHCP, console server
- Monitoring, configuration files



# User Management & Authentication



- Central authentication
- NIS, NIS+
- LDAP

# Configuration Management

- CFEngine
- Chef
- Puppet
- Configuration files, settings, permissions
- Protect and evolve standard environment

# Monitoring

- Detect problems
- Even before they happen
- Forecasting
- Preventive or recovery actions
- Cacti, Nagios, Munin, Ganglia, Zenoss
- Custom reports, trend analysis

# Log Management



- Log collection
- Aggregation



# Requirements

# Requirements

- Asset Management System w/Database Backend

# Requirements

- Asset Management System w/Database Backend
- Datacenter Team



# Requirements

- Asset Management System w/Database Backend
- Datacenter Team
- Remote access to pre-boot environment & Power

# Requirements

- Asset Management System w/Database Backend
- Datacenter Team
- Remote access to pre-boot environment & Power
- Software to create configuration files

# Requirements

- Asset Management System w/Database Backend
- Datacenter Team
- Remote access to pre-boot environment & Power
- Software to create configuration files
- Sanity Checks

# Requirements

- Asset Management System w/Database Backend
- Datacenter Team
- Remote access to pre-boot environment & Power
- Software to create configuration files
- Sanity Checks
- GUI

# Requirements

- Asset Management System w/Database Backend
- Datacenter Team
- Remote access to pre-boot environment & Power
- Software to create configuration files
- Sanity Checks
- GUI
- No Manual Involves

Ozgur Demir

ozgurcd@gmail.com  
[www.facebook.com/guru](http://www.facebook.com/guru)