System Installation Suite

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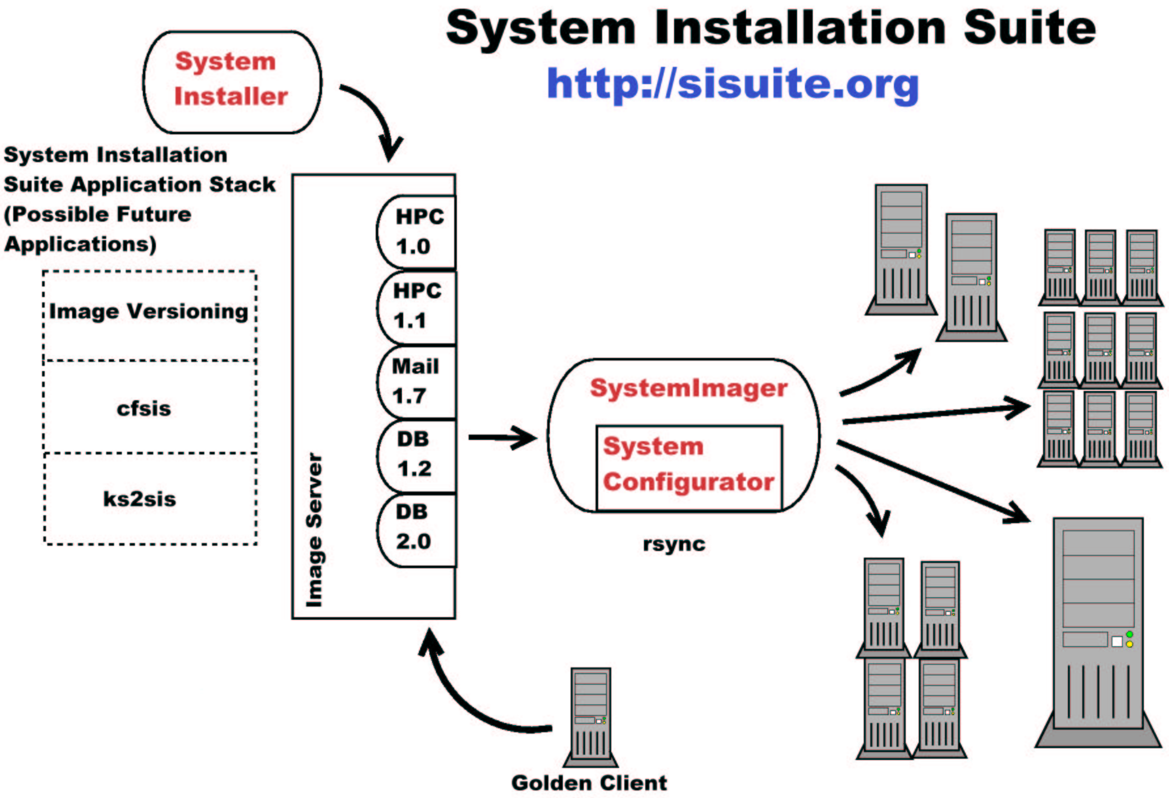
SIS = SystemImager + LUI

- SystemImager – Image Based Installation and Maintenance Tool
- LUI – Resource Based Cluster Installation Tool
- Projects merged in April of 2001
- **Goals**
  - Support all Linux distributions
  - Support a large number of architectures
  - Make it easy to add support for new distro and architectures
  - Make it so no one has to solve the massive installation issue again

  (i.e. Do it once, do it right, do it for everyone)

System Installation Suite at a glance



SIS at a glance – described

- Many different images and versions of images may be stored on an Image Server
- Image can be captured from an existing machine
- Image can be created from a set of packages directly on the Image Server
- RSYNC is used to propagate the image during installation
- Because RSYNC is used, maintenance is easy done (i.e. only changes are pulled across the network).
- Because replication is done at the file level and not the package level it is very distribution agnostic

What does it do for me?

- System Installation
  - Fast and efficient way to install machines
- System Maintenance
  - Rsync only propagates the changes between client and image
- File System Migration
  - Image an ext2 machine, image back as ext3 or reiserfs (XFS and JFS coming soon)
  - Migrate systems from non-RAID to Software RAID
- Easy Machine Backup
  - Build replicants of machines

Capturing an Image from a Golden Client

- getimage is the standard SystemImager way of capturing an image from a golden-client to the image server
- On the client:
  - prepareclient – run on client; sets up rsyncd on client machine
- On the server:
  - getimage – rsyncs the image from the client to the server
  - mkautoinstallscript – creates the autoinstall script on the server for the image
  - addclients – adds client definitions for the image

Creating an Image directly on the Image Server

- buildimage is the System Installer program to create an image directly on the server from an RPM list and disk partition file
- On the server:
  - mksiimage – builds the base image
  - mksidisk – creates disk partition table information
  - mkautoinstallscript – builds the autoinstall script for the image
  - mksimachine – creates client definitions for a machine
- System Installer stores all the image and client info in a flat file database for other applications to utilize

Tksis – System Installation Suite GUI

- Perl-Tk GUI for System Installation Suite available as the systeminstaller-x11 package (still in early stages)
- Currently only interfaces with System Installer buildimage calls (will integrate with SystemImager calls in the near future)
- Provides an easy to use interface for installation
- Component Panels may easily be integrated into other Perl based installation tools

Installing an image – part 1

- Image can be autoinstalled via diskette, cd, or network
  - mkautoinstalldiskette – creates autoinstall floppy
  - mkautoinstallcd – creates autoinstall cd ISO
  - mkbootserver – creates PXE autoinstall server
- Boot steps
  - autoinstall media boots
  - looks for local.cfg (network information) or uses dhcp to get ip
  - determines hostname from ip address or local.cfg
  - fetches $hostname.sh autoinstall script from Image Server

Installing an image – part 2

- Autoinstall Steps
  - rsync over any additionally needed utilities (mkraid, raidstop, raidstart, mkreiserfs, etc.)
  - partitions disk drives using sfdisk
  - format and mount all filesystems
  - rsync image from Image Server
  - run **systemconfigurator** to setup networking and bootloader
  - unmount all filesystems
  - do specified postinstall actions (one of beep, shutdown, or reboot)
- Autoinstall will dump to a shell if any errors are encountered

Maintaining a machine

- Choice 1: Maintain the Image directly
  - Image is a full live filesystem
  - you can chroot into the image
  - compile code in the image
  - run rpm -Uhv newpackage.rpm in the image
- Choice 2: Maintain the Golden Client
  - Apply hot fixes to the golden client
  - Rerun getimage to recapture the image
- updateclient – resyncs client to image
  - because rsync is used, only the changes between image and client are propagated

Who's using it?

- SIS = ++SystemImager
- All users of SystemImager > 2.0 are SIS users
- OSCAR 1.2 uses SIS for installation
- SCore, Clubmask and other clustering groups interested in using SIS for installation
- SystemImager 2.0 and System Configurator 1.0 accepted into Debian 3.0 distribution

Future Directions

- System Installer 1.0
  - Debian Package support
  - IA64 arch support
- SystemImager 2.2
  - devfs clients
  - IA64 arch support
- SystemImager 2.4
  - PPC, S390, and HPARISC arches
  - JFS and XFS file systems
  - remote logging
  - internal API (allows for Tksis integration)
- Inclusion in more Linux Distributions
- Unified GUI for System Installer and SystemImager

Questions?

- System Installation Suite : http://sisuite.org
- SystemImager : http://systemimager.org
- System Installer : http://systeminstaller.sf.net
- OSCAR : http://oscar.sf.net
- Team can be found on #sisuite and #systemimager channels on irc.openprojects.net