ConsoleKit and New GNOME Display Manager

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Outline

- Basic concepts
- ConsoleKit functionality
- Multi-session and Multi-seat
- New GNOME Display Manager
- Typical displays
- Sun Ray support
- Security-related issues

Basic concepts

- Session
  - A collection of all processes that share knowledge of a secret.
  - Originated from a single common ancestor
  - Identified by XDG_SESSION_COOKIE variable
- Session leader
  - The process that requests a new session be opened
- Seat
  - A collection of sessions and a set of hardware (usually at least a keyboard and mouse). Only one session may be active on a seat at a time.

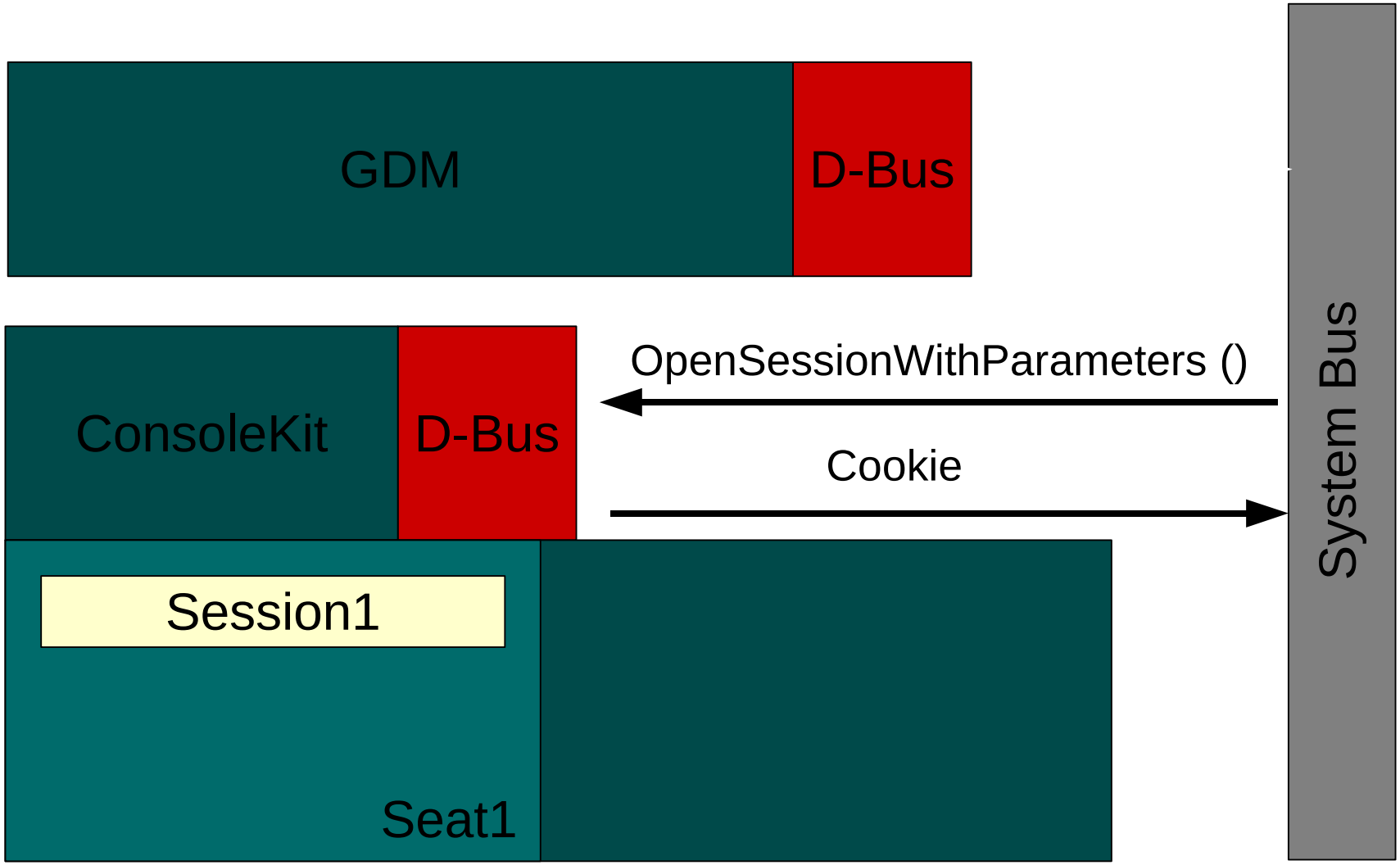
ConsoleKit functionality

- Track session info, e.g.

```
Session1:
        uid = '224925'
        realname = 'Simon Zheng'
        seat = 'Seat1'
        session-type = ''
        active = FALSE
        x11-display = ':0'
        x11-display-device = '/dev/vt/1'
        display-device = ''
        remote-host-name = ''
        is-local = TRUE
        on-since = '2008-06-10T07:46:28Z'
```

- Determine which session is active
- Determine which Seat is active and its session list

How to register a session



Multi-session and Multi-seat

- Multi-session (aka. Fast User Switching)
  - Depend on Virtual terminal/Virtual Console
  - Run one Xserver and Gnome session per VT
  - Switch between different users without logout
- Multi-seat
  - SunRay is a typical use case
  - Each DTU has its own keyboard, mouse and monitor
  - Theoretically, each seat has multi-session

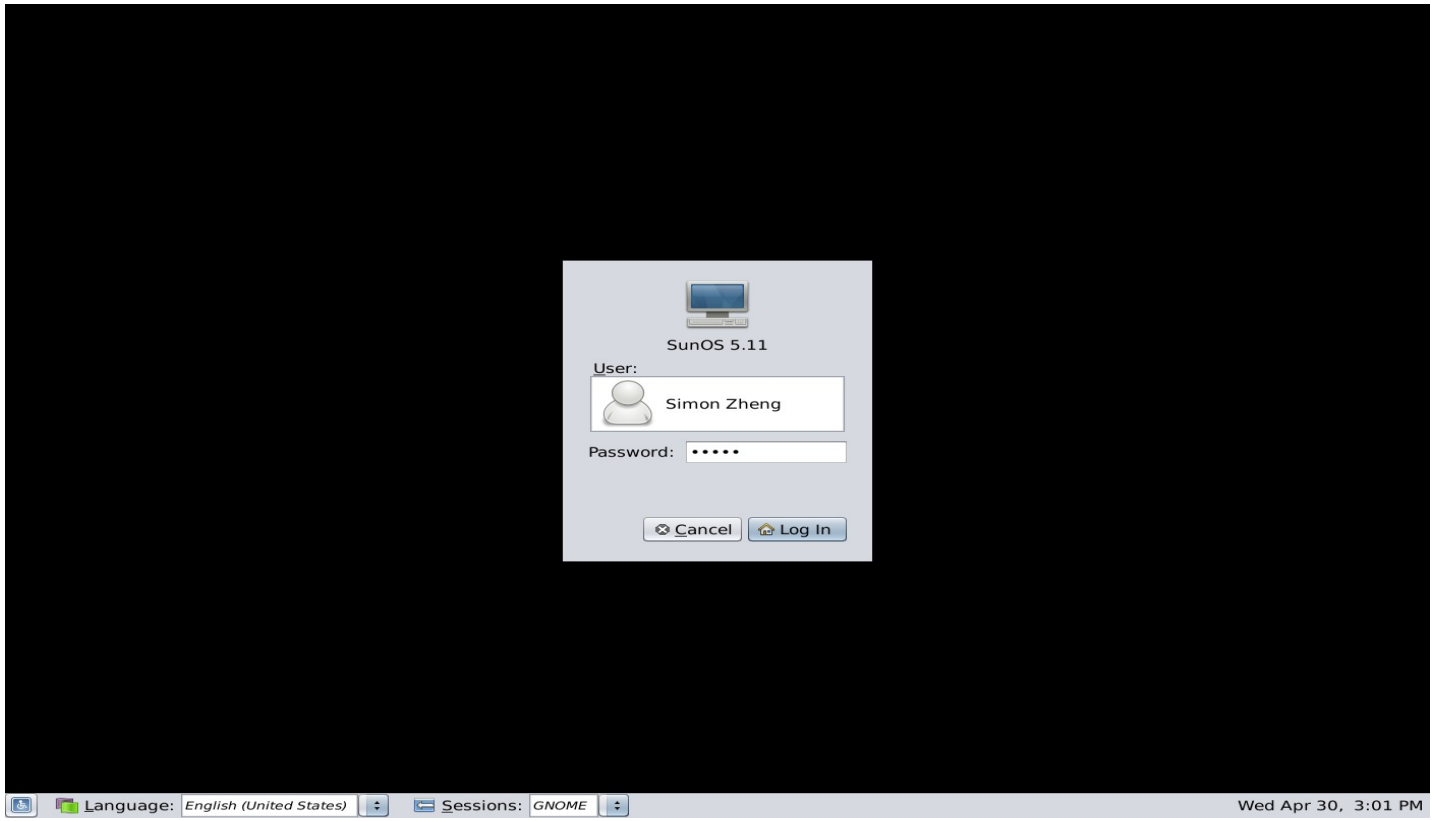
Footnote position, 12 pts.

New GNOME Display Manager

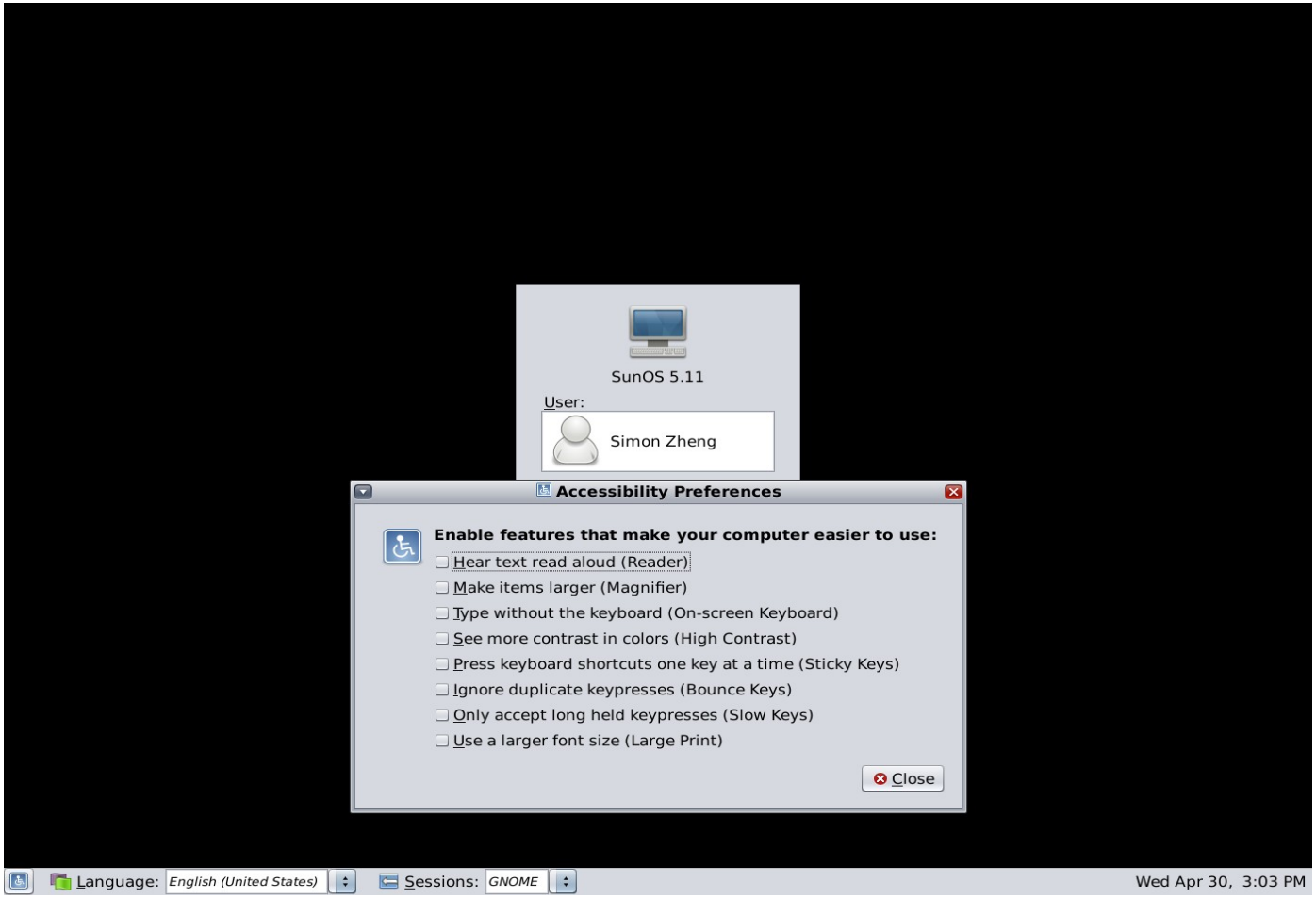
- To build a modern multi-user desktop, it's rewrote by Joh and Ray since July 2007
- What's new features?
  - Better fast-user-switching
  - Better ConsoleKit integration
  - D-Bus APIs replace socket-based controlling
  - Enhance flexibility by use of Gobject
  - Smarter user chooser in greeter
  - Allow session agents to run in the greeter session (e.g. gnome-power-manager)

Footnote position, 12 pts.

Screenshot – Login screen



Screenshot – A11y



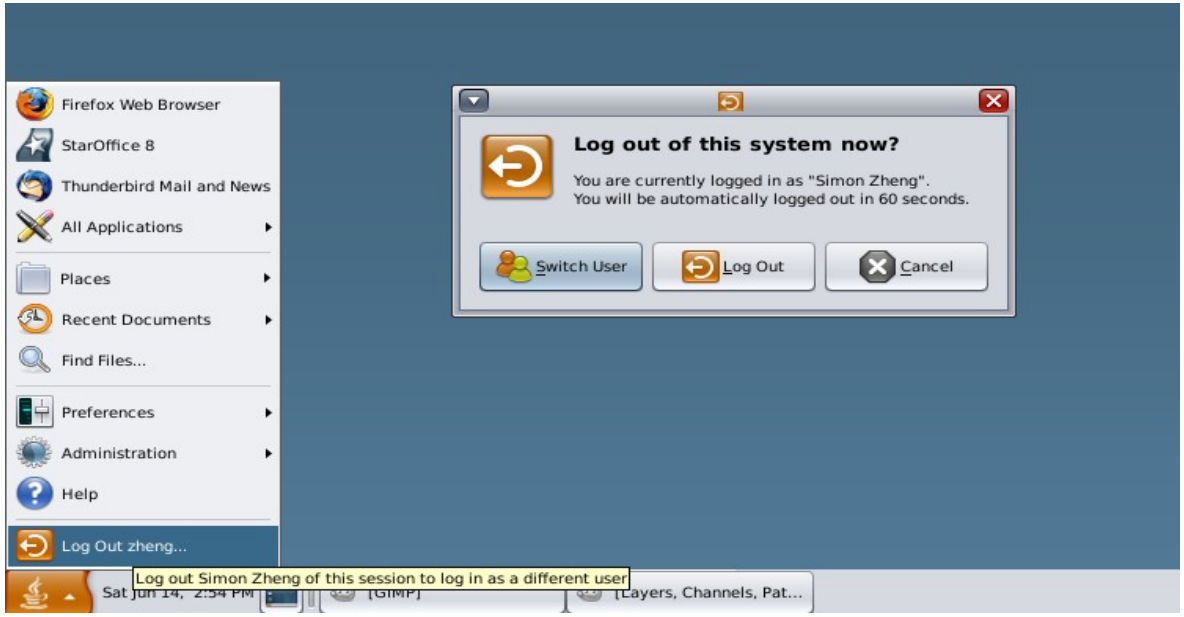
Screenshot – Login window

Initial login window

After choosing user

Multi-user login

Fast-user-switch applet and button



GDM workflow

- Mission: manage graphical display servers and handle graphical user logins
- workflow
  1. gdm daemon starts a slave process to manage a new display
  2. Slave create a X authority file
  3. Start Xserver for this display
  4. Run login screen as a welcome session, wait for user authentication.
  5. Once success to authenticate, launch user session (usually gnome session) and register on ConsoleKit
  7. Restart login screen when logout, goto step 3.

Typical displays

Category	Xserver	Slave	Auto restart when die
Static	Xorg	Simple-slave	Yes
Flexible/transient	Xorg	Simple-slave	No
Nested Flexible	Xephyr	Simple-slave	No
XDMCP	Xorg	Xdmcp-chooser-slave	No
Product	Xorg	Product-slave	No
Dynamic	Custom Xserver	Simple-slave	Yes

Sun Ray support

- Add/Remove display dynamically along with DTU connection
- List all dynamic displays
- Run Sun Ray specific Xserver
- High throughput, likely starting 200 displays at once

Security-related issues

- Logindevperm
- SDTLOGIN
- RBAC for reboot, shutdown, suspend button
- utmp/wtmp auditing

Questions?