


Ubuntu Application Lifecycle

Or: How I learned to stop worrying and trust application developers

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“I'm more worried about Murphy
than I am Machievilli”

— Michi Henning

Ideal
Cracker



Diminished User Experience





Dead
Battery

Data Protection

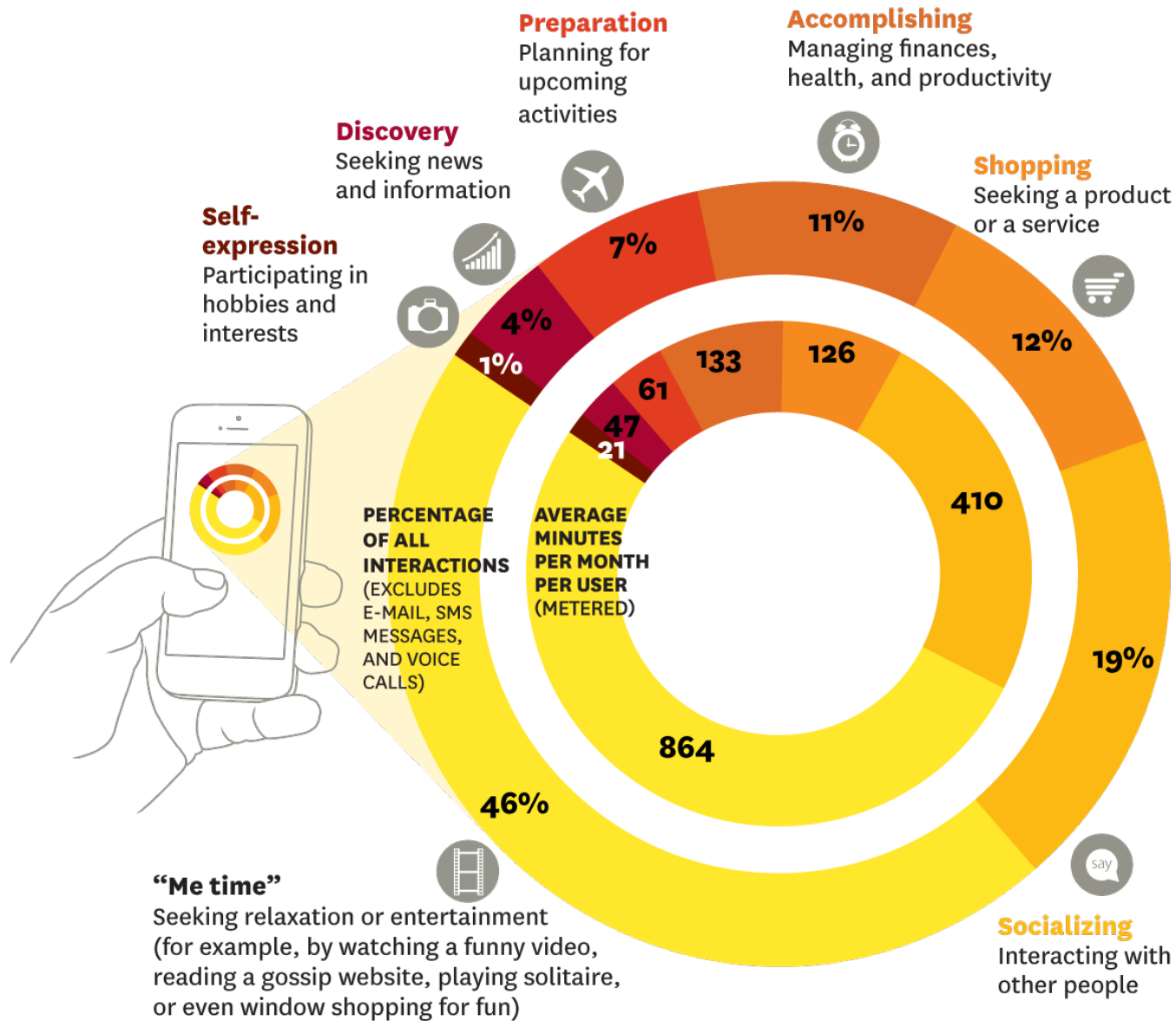


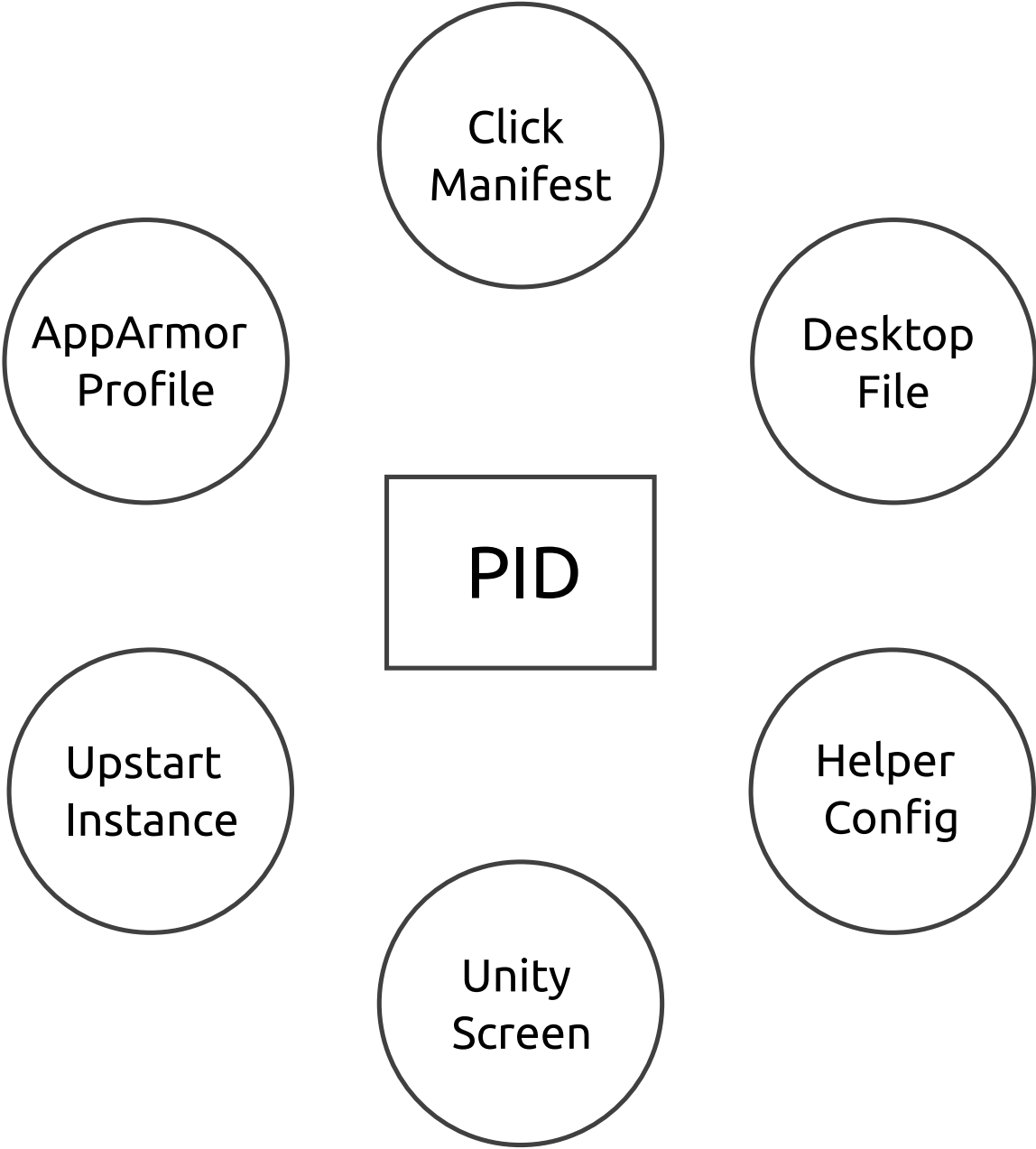
**PRIVACY
PLEASE**

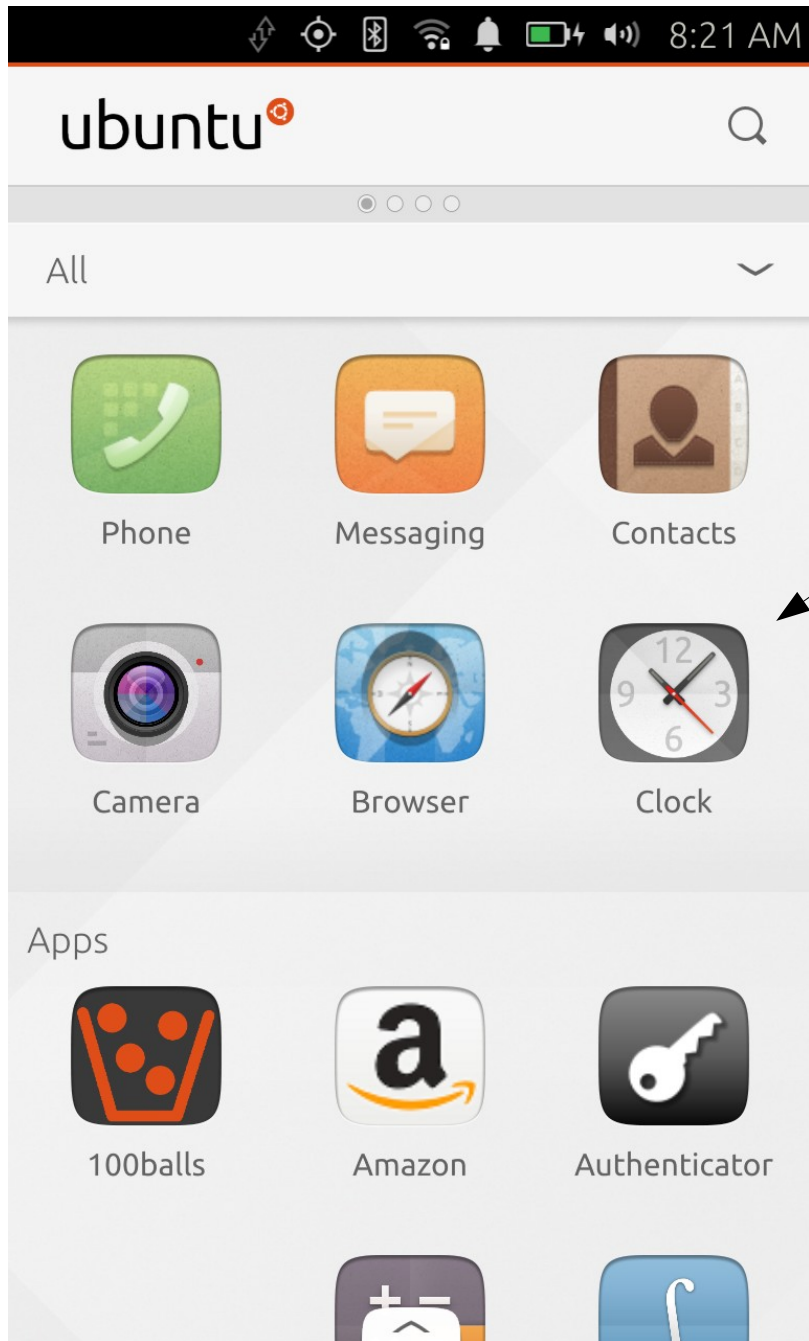


Physical Destruction

Phone Usage



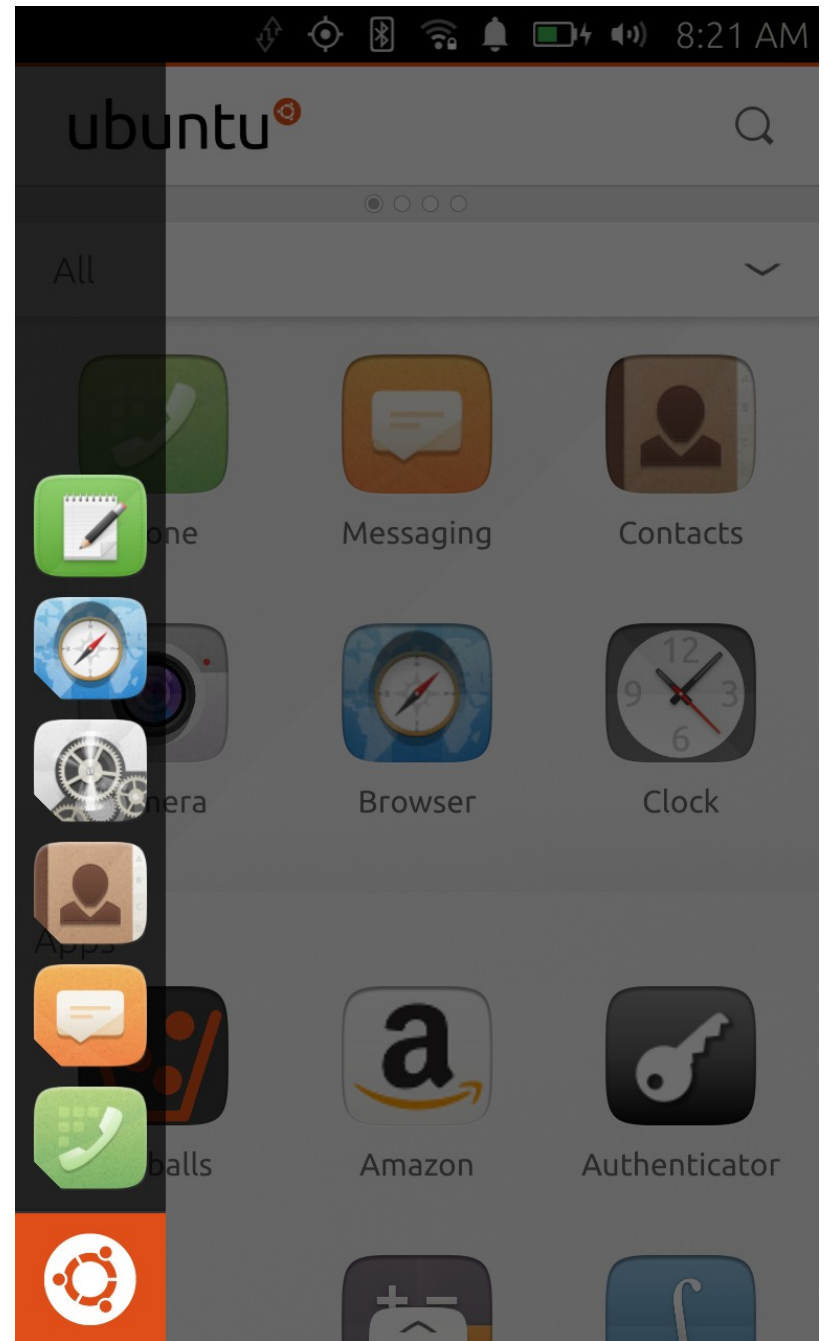


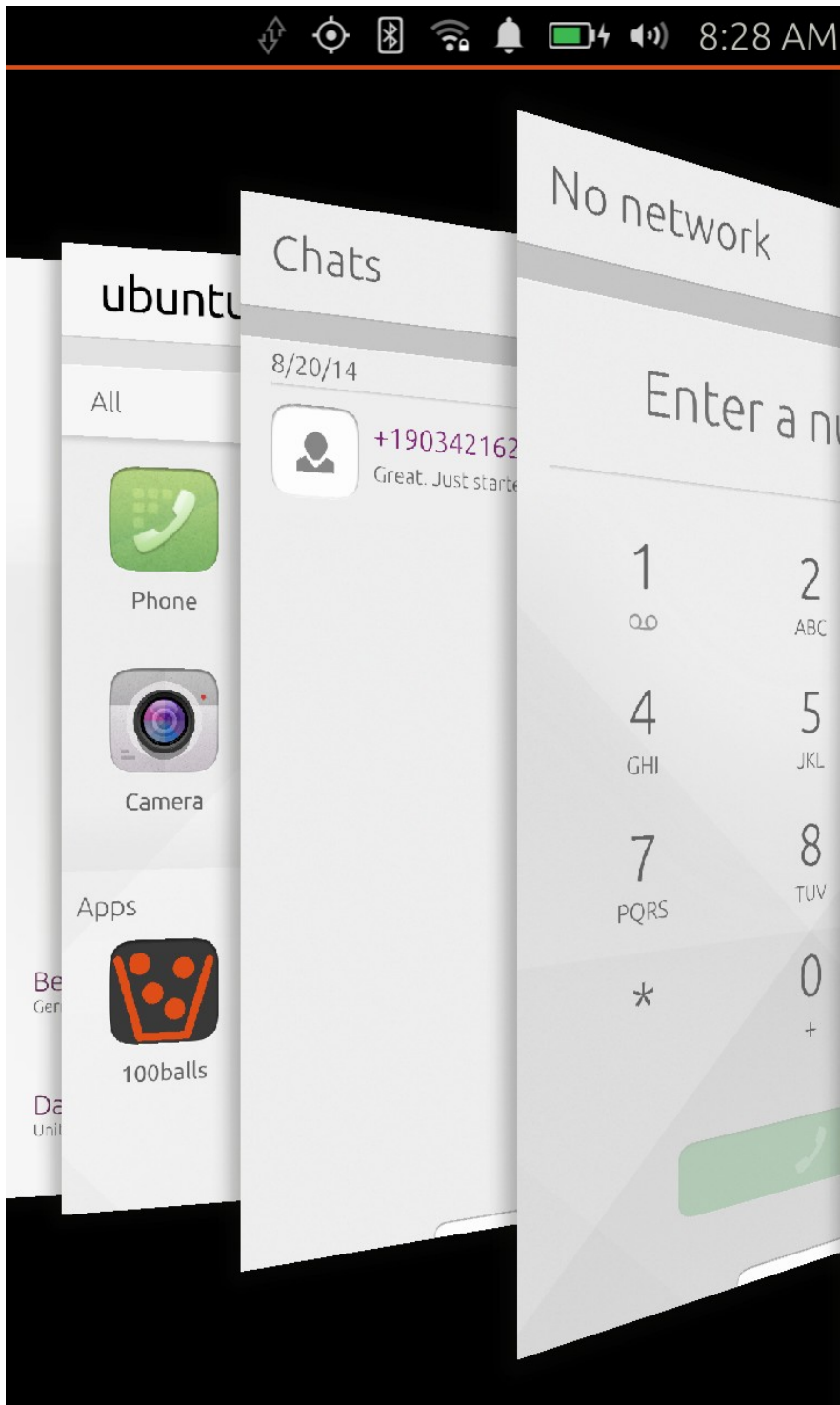


App



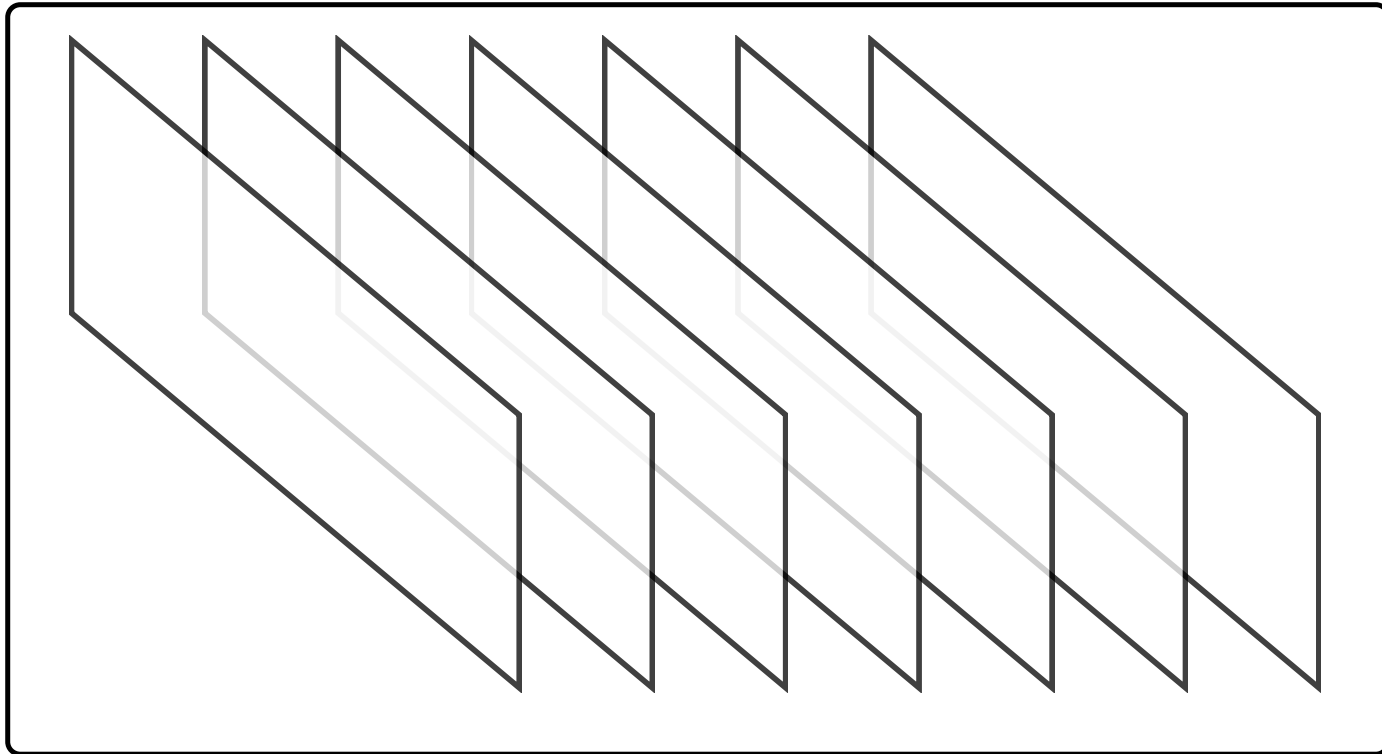
App



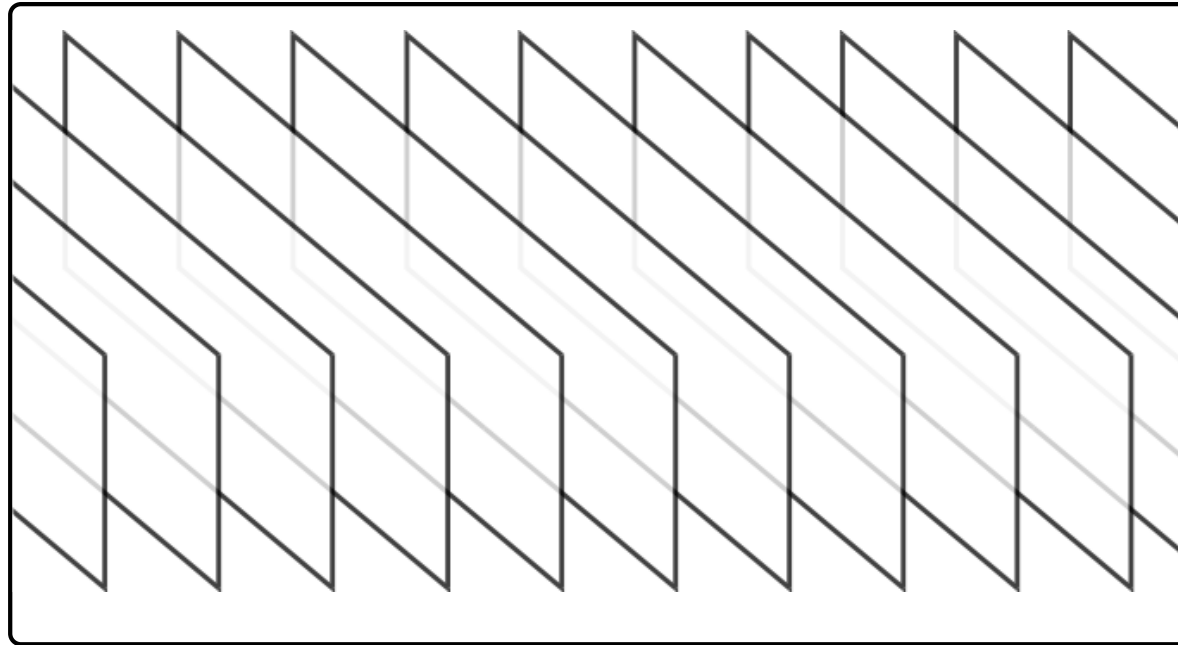


Application Switcher

Presentation Application Switcher



Infinite App Illusion

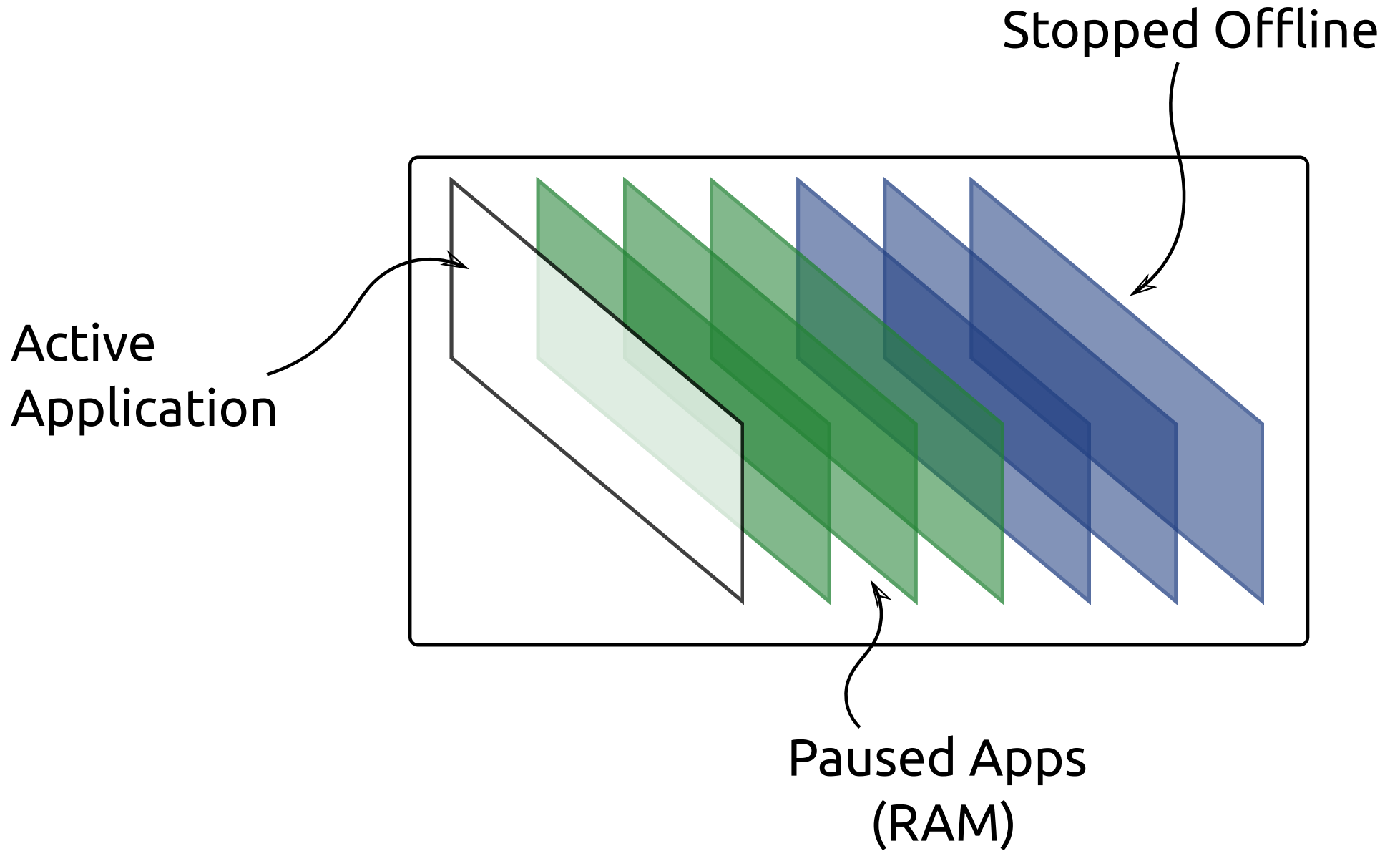


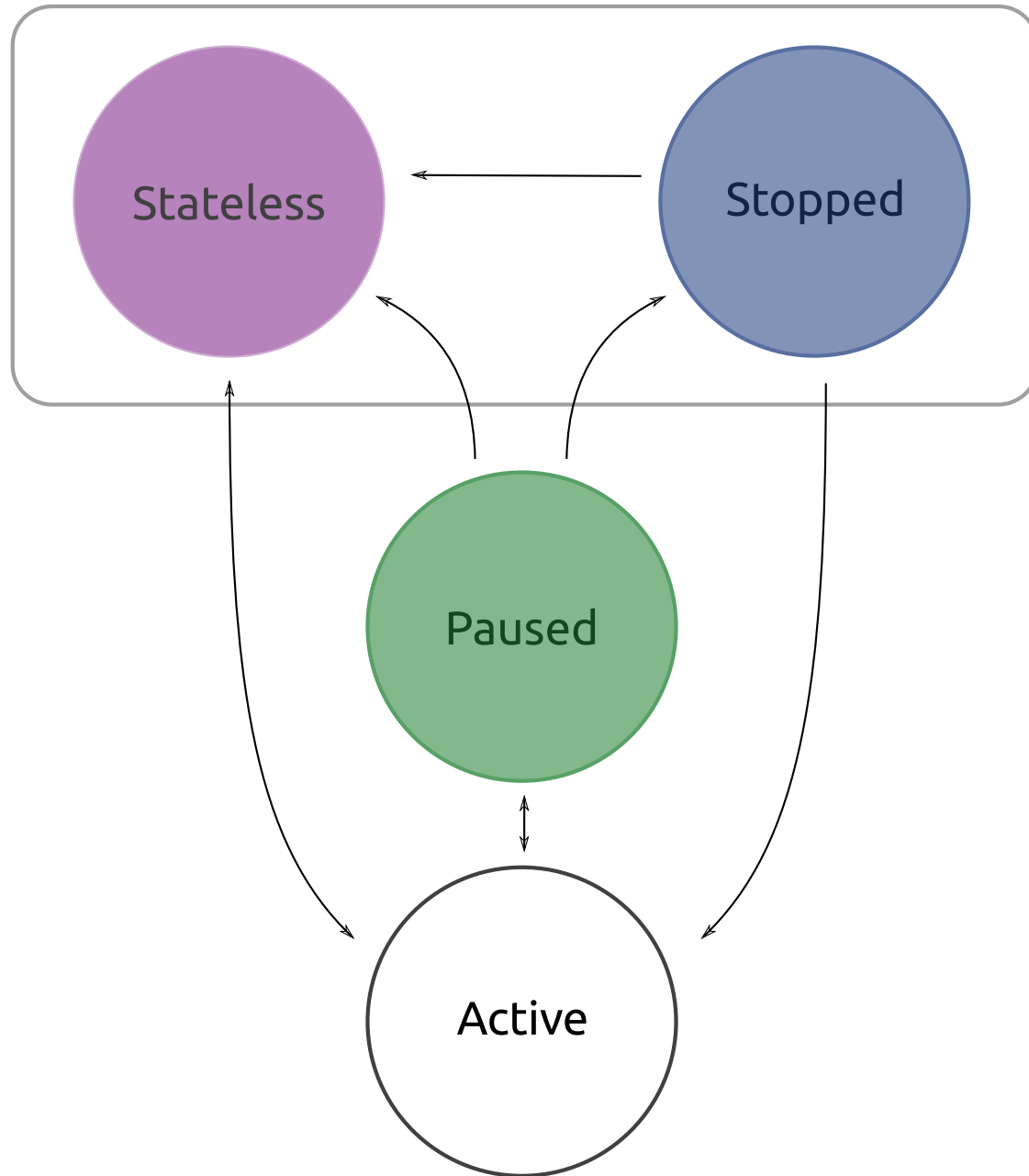
Technical

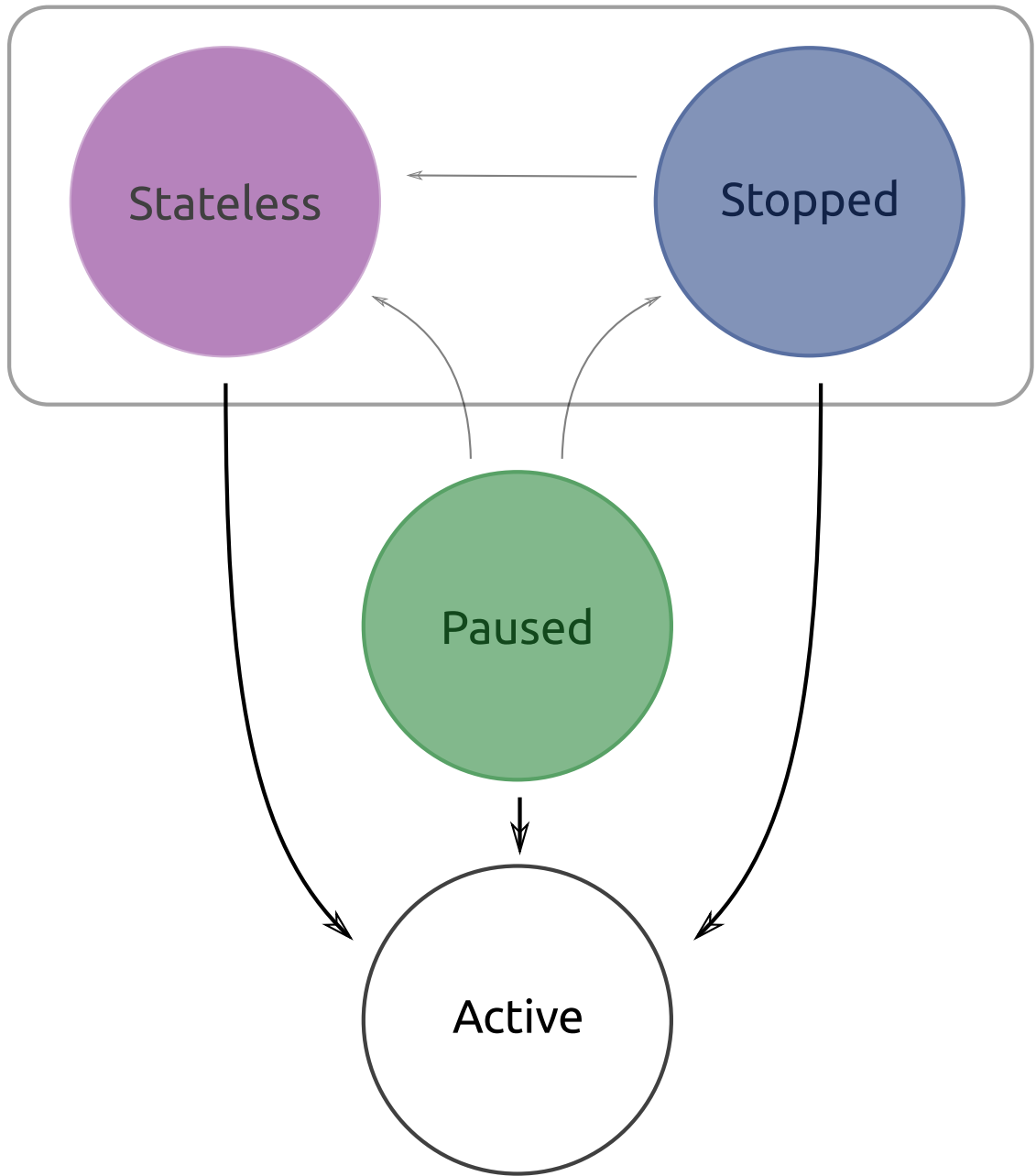
1 GB RAM
1 GHz Quad Core

User

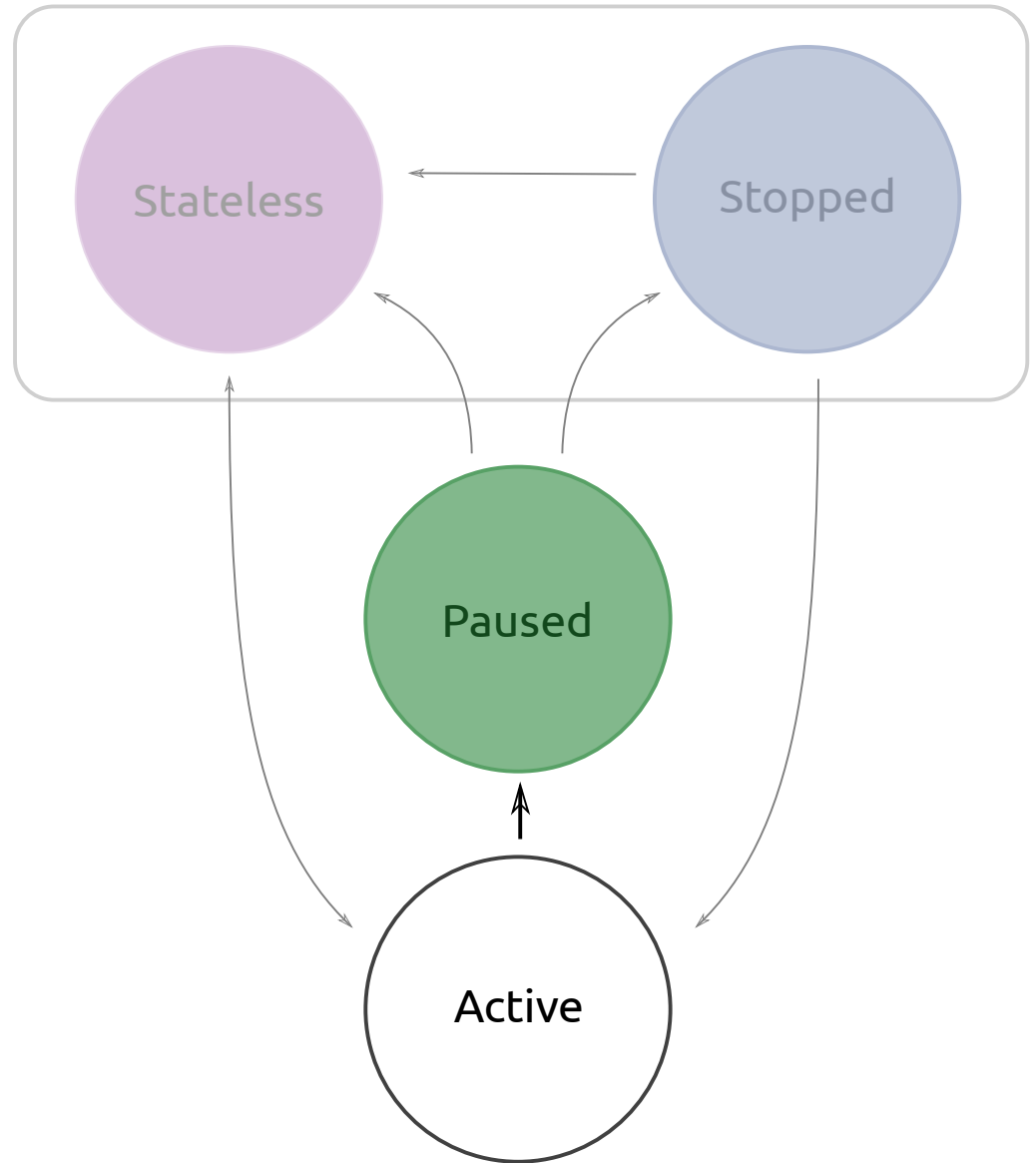
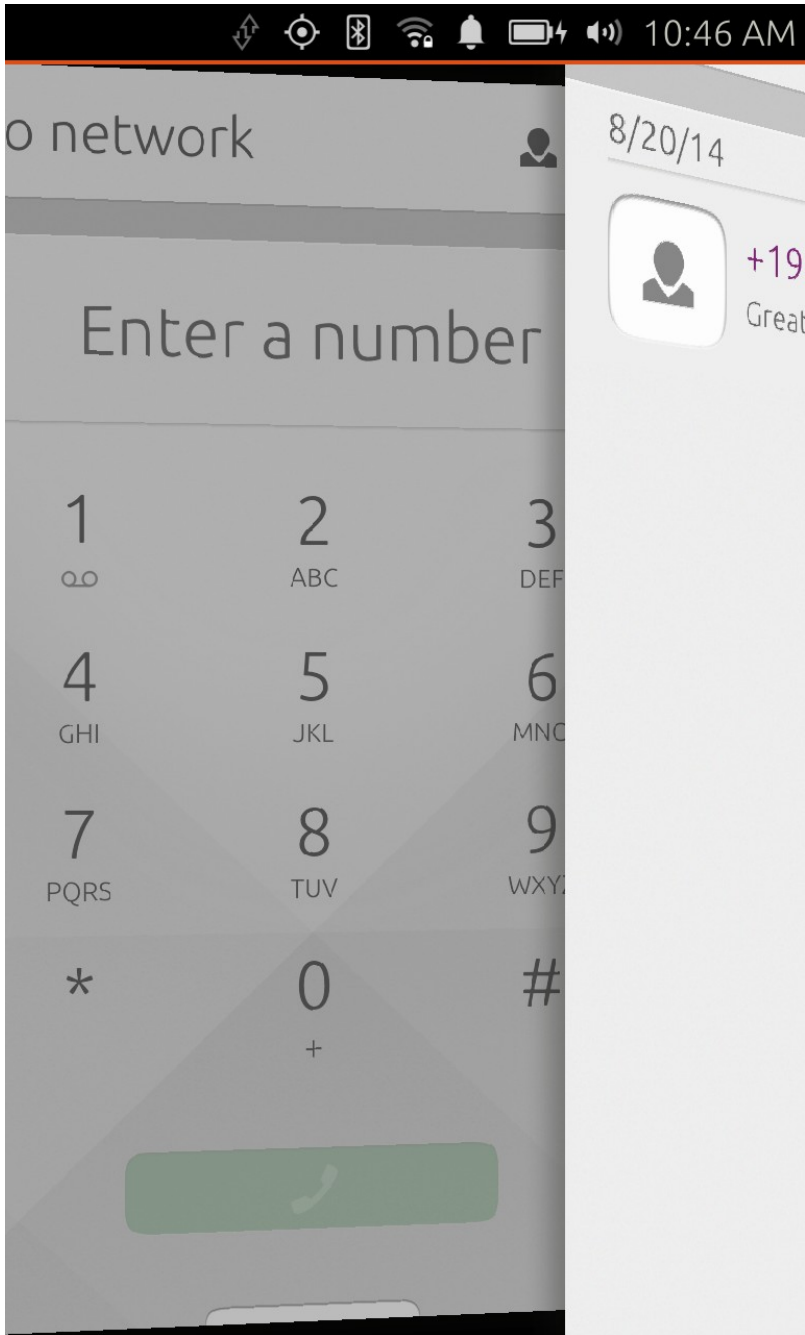
How many
apps can I run?

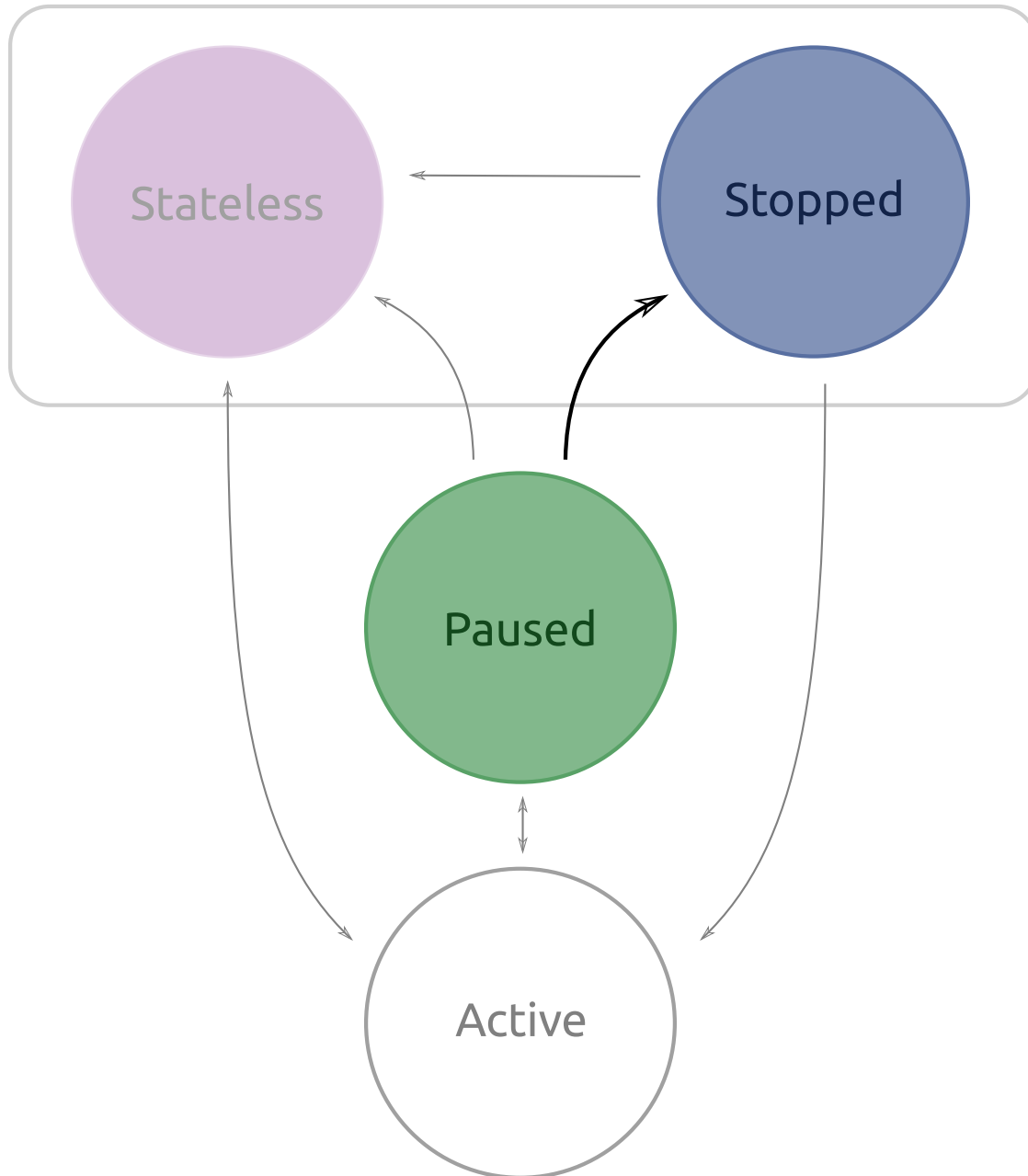






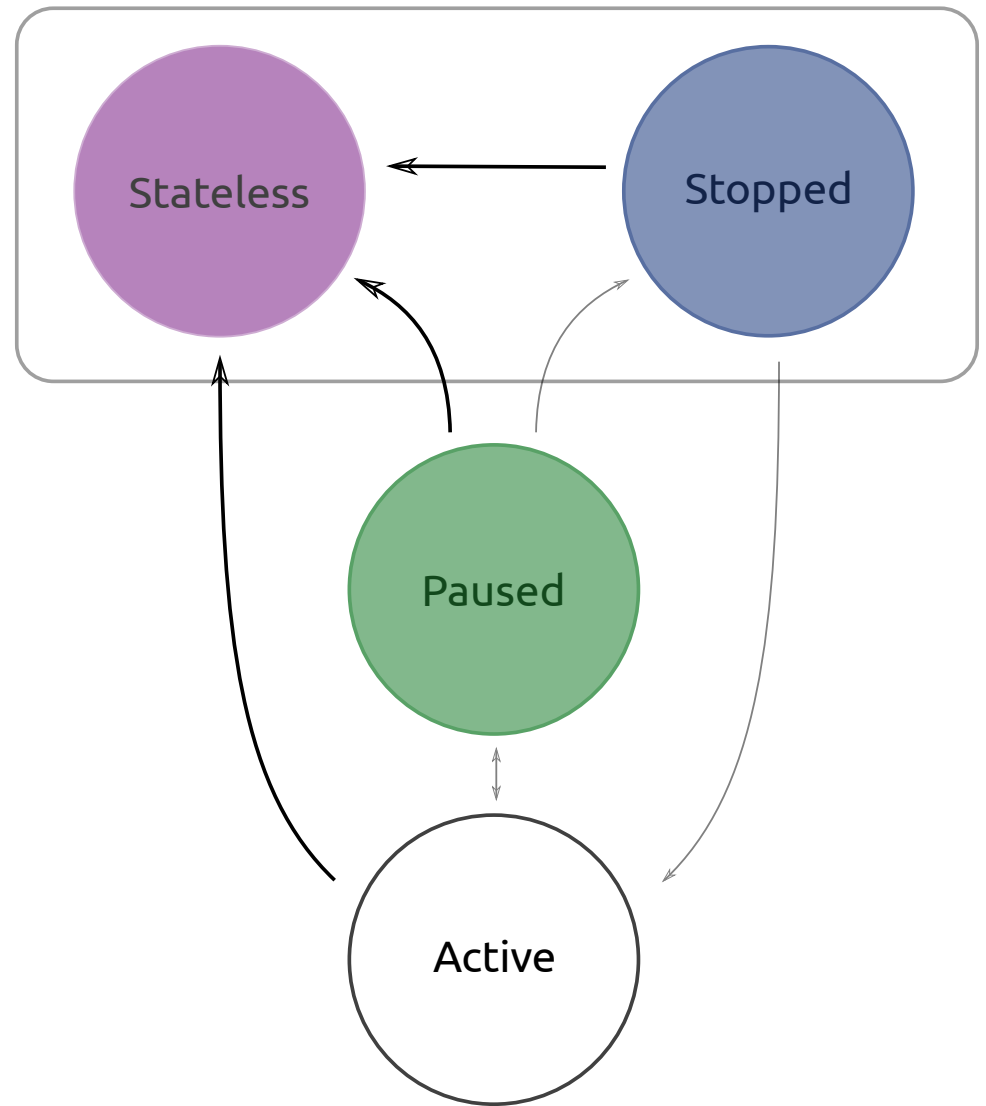
**User
Interaction
Only!!!**

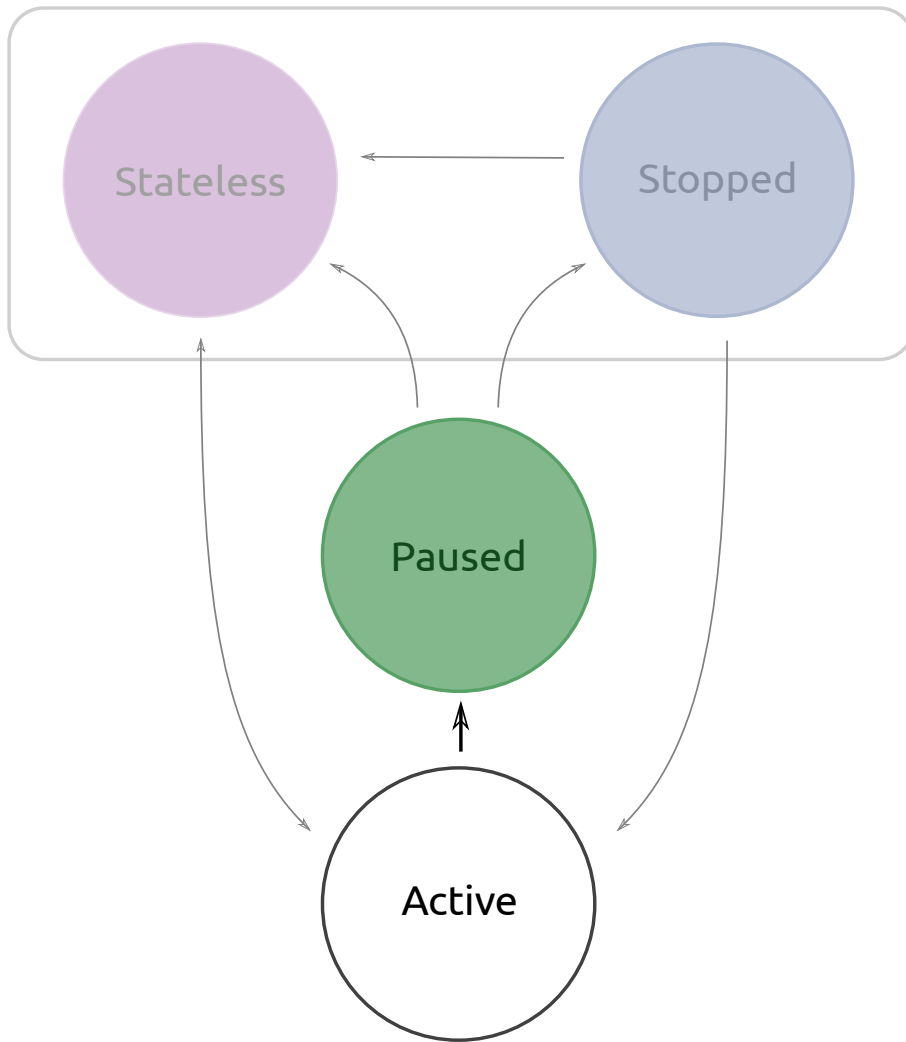




Linux Kernel
OOM Killer

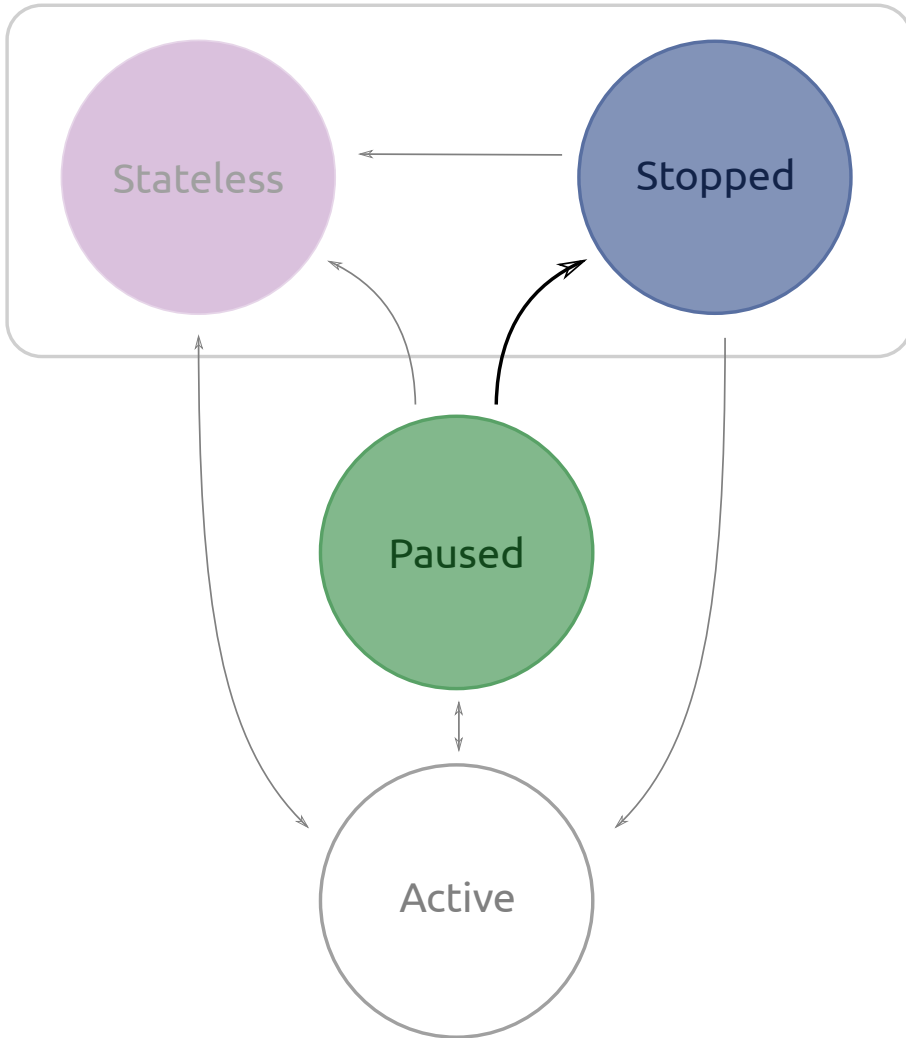
*(want to include
graphics resources in
the future)*





What happens:

- App is asked to save state
- Graphic buffers grabbed for screenshot
- Timeout, then all processes are sent SIGSTOP



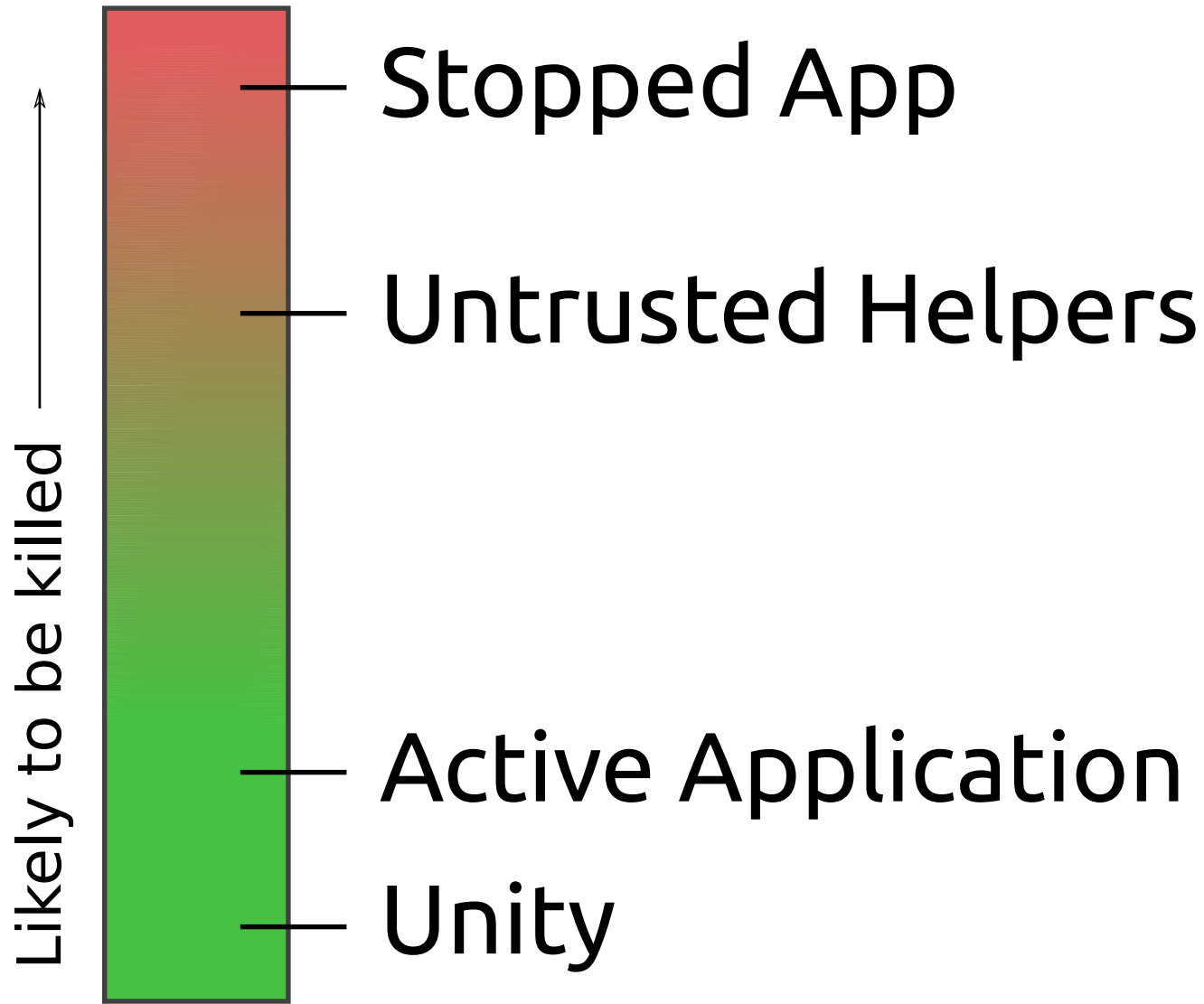
What happens:
• NOTHING!

Positive:

Ask to save state nicely via life cycle
Stop using processing when not asked

Negative:

SIGSTOP apps
SIGKILL apps on OOM killer

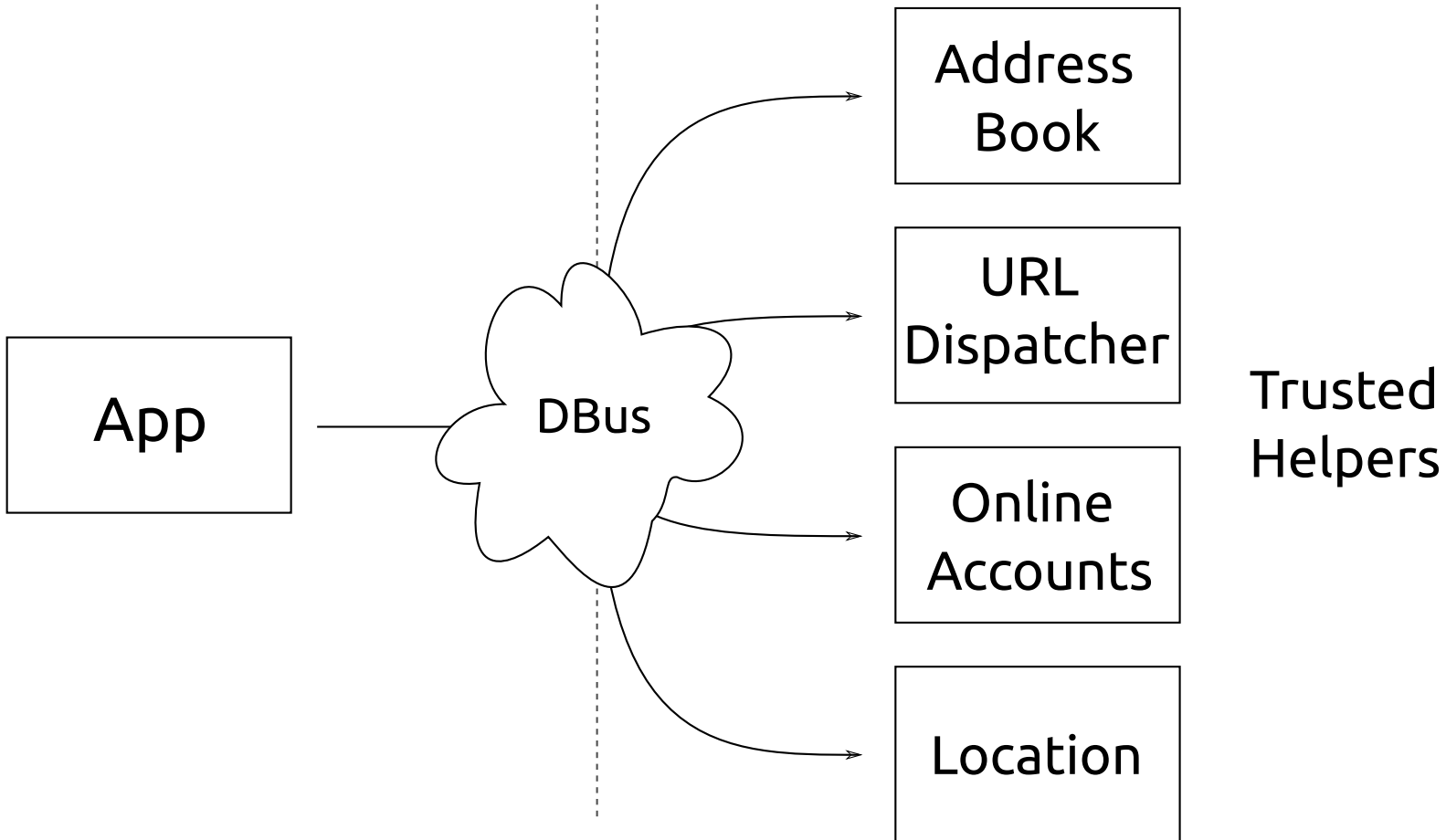


Trusted Helpers

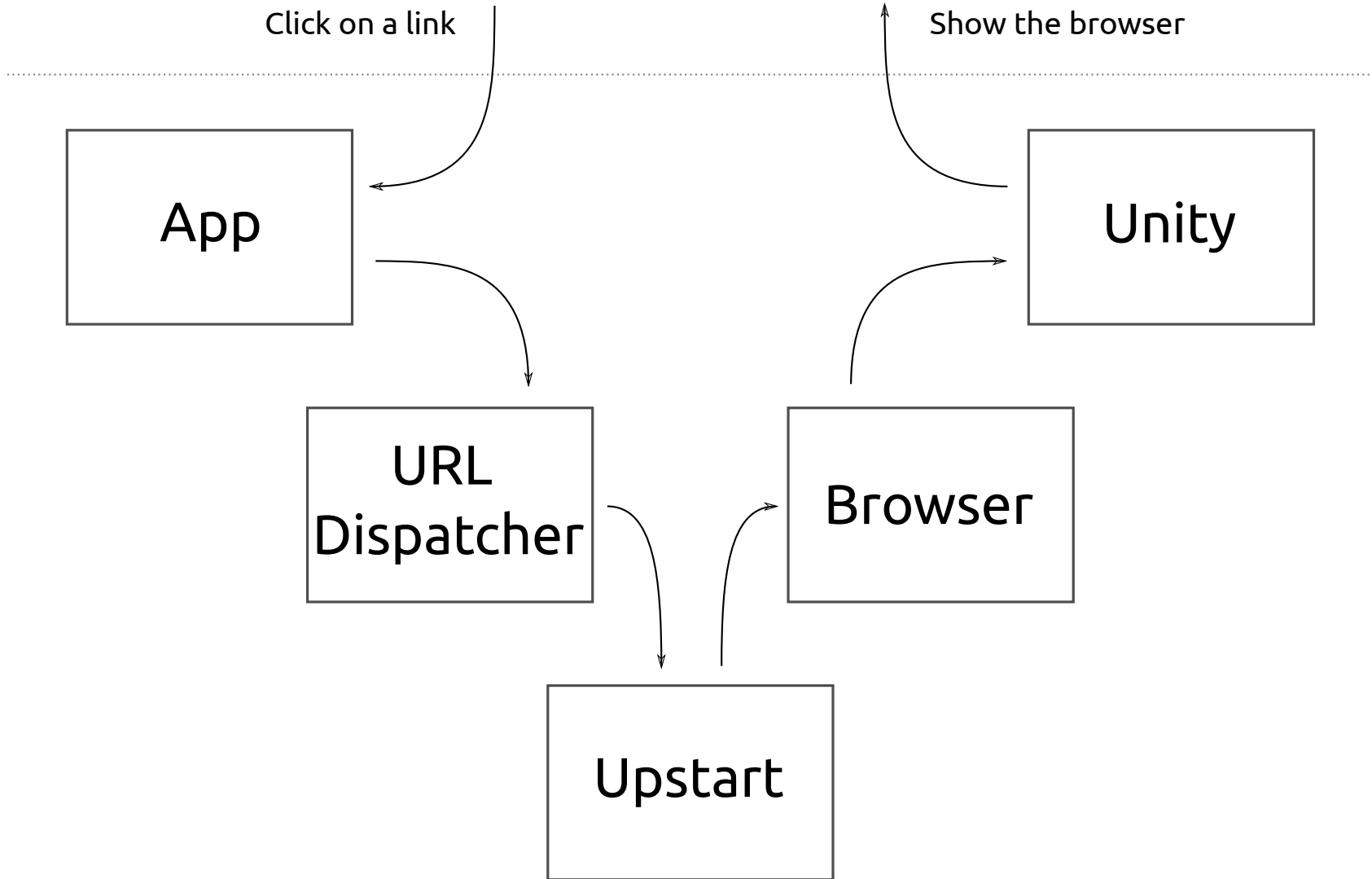
- **Download Manager** — Downloads content to the device while the application isn't focused.
- **Push Messages** — Background process that collects JSON messages targeted at app/user
- **Location Service** — Uses GPS and other sources to establish location continually.
- **Content Hub** — Shares files between application contexts securely.
- **Media Hub** — Plays audio files and play lists.

AppArmor

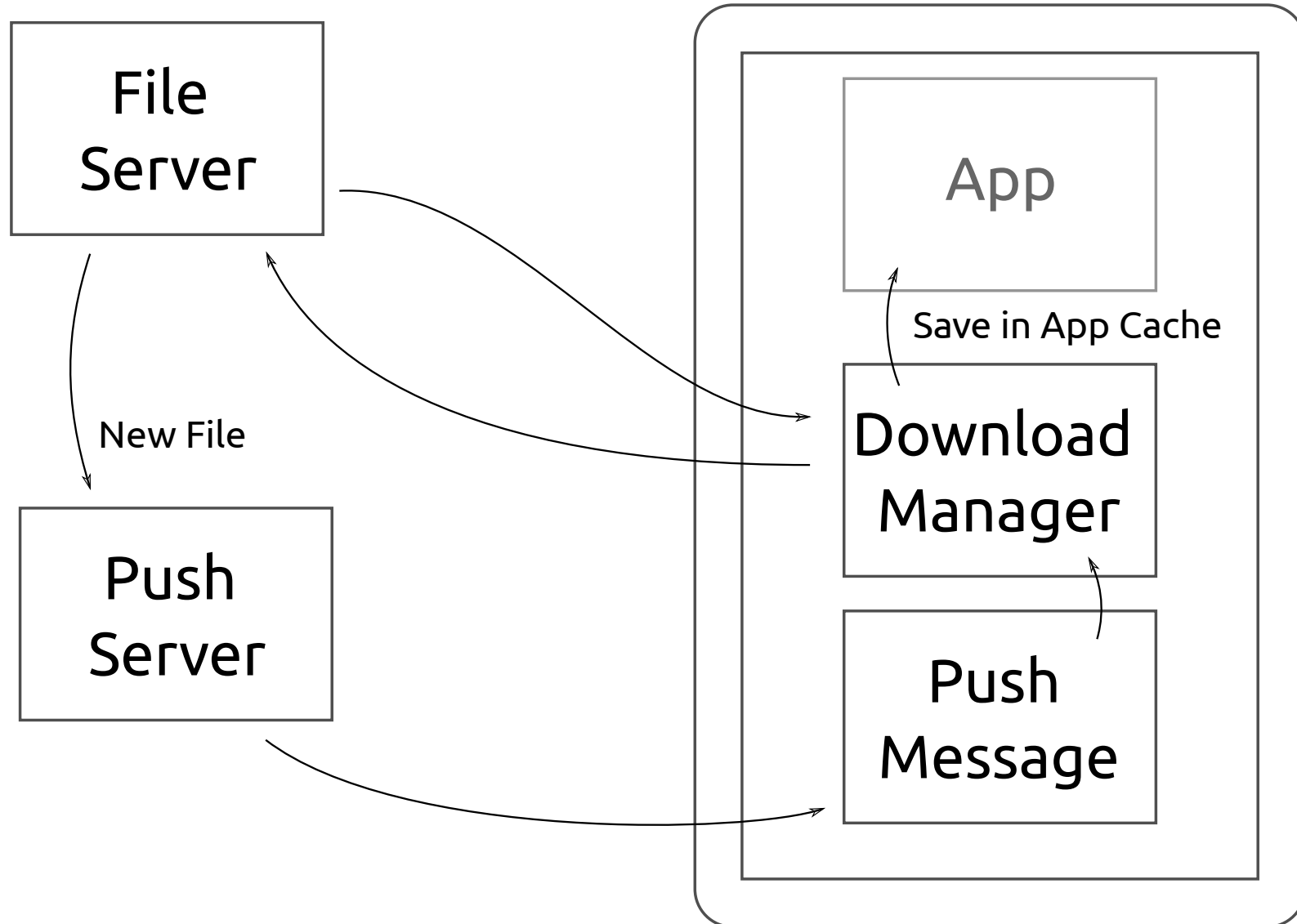
← Confined Trusted →

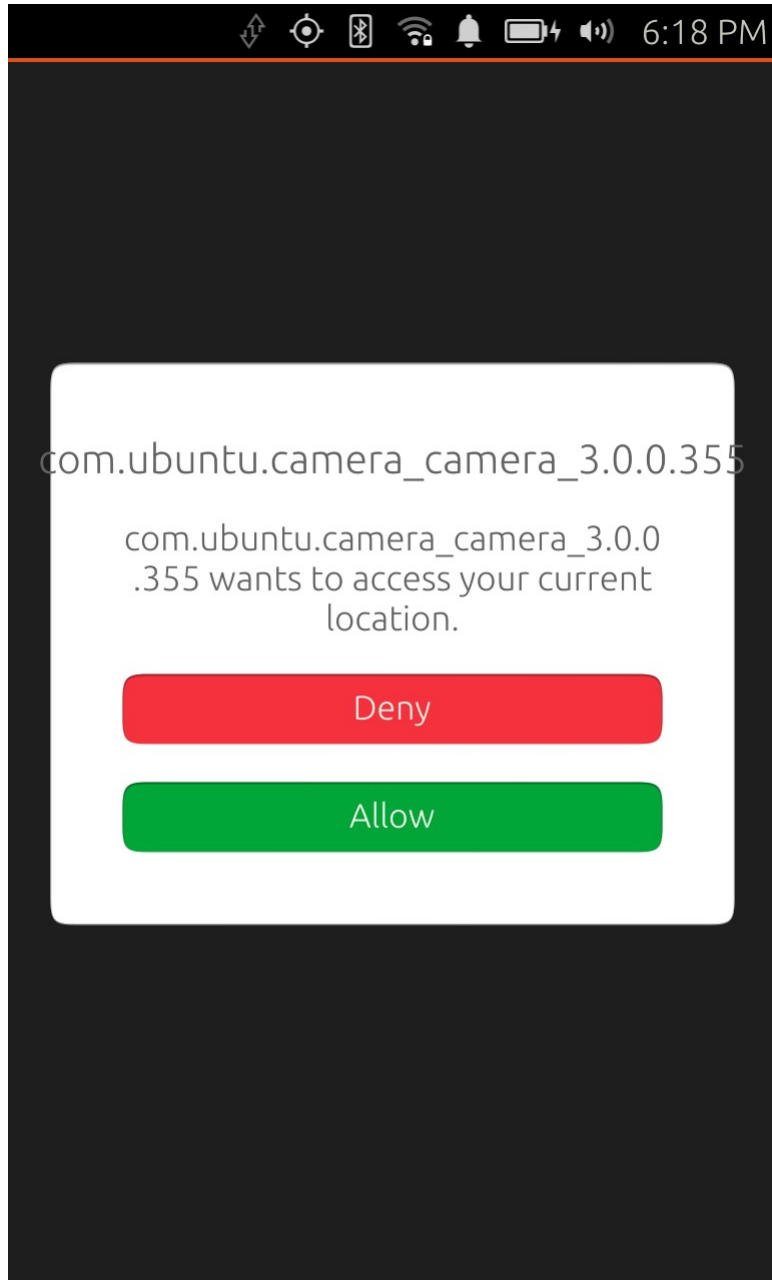


USER



Simple Sync





Request permission at
time of use

Review

Ubuntu Applications are:

- **Confined** — By default the applications are restricted from using a lot of functionality that might be expected from a traditional Linux user session.
- **Managed** — The application lifecycle works to keep the user in control of what is draining the battery and using resources.
- **Have Friends** — Trusted helpers provide ways to implement the functionality you need and work with confinement.

Additional Info

<http://www.ubuntu.com/phone>

<https://developer.ubuntu.com>

<https://wiki.ubuntu.com/Security/AppArmor>

<https://wiki.ubuntu.com/Mir>

