Monty Python's Flying Cockpit
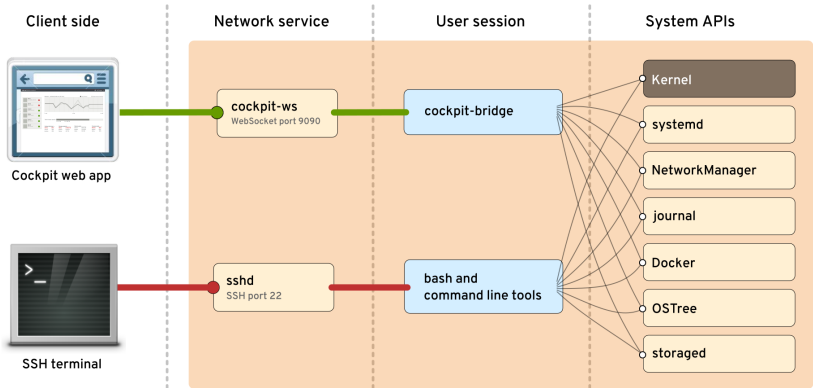
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Cockpit intro

- Interactive Server admin web interface
- Setup and troubleshooting for one or a few machines

Architecture

Demo: Fedora Server

Demo: Connect to a CentOS 9 Stream cloud instance

Making the bridge portable

What's a web app?

Web: Server delivers the app to the client and the client runs it.

How: HTTP + Javascript/CSS/HTML.

Interaction with the user (and features of the user's device).

Reverse the idea

Clients can deliver applications to servers and have servers run them.

How: SSH + Python

Interaction with the server OS (via Python standard library).

beiboot

A tool for turning a Python interpreter into a complex interactive Python program.

The interpreter can be running in a "different environment".

"Different environments"

A stdin/stdout/stderr connection to a command running somewhere else.

- `ssh machine ...`
- `sudo ...`
- `podman exec container ...`
- `flatpak-spawn --host ...`

"Different environments"

A stdin/stdout/stderr connection to a command running somewhere else.

- `ssh machine python3 -i`
- `sudo python3 -i`
- `podman exec container python3 -i`
- `flatpak-spawn --host python3 -i`

beipack

A tool for turning a complex Python program (with libraries, modules, packages, data files, etc.) into a single Python script.

Similar in spirit to `zipapp` files, but a bit better for our use case.

Putting it together: Hello World

beiboot + beipack: self-containment

```
# beiboot stage1
src = lzma.decompress(src_xz)
exec(src, {
    '__name__': '__main__',
    '__self_source__': src_xz,
    '__file__': filename})

# beipack Loader
def __init__(self, contents: Dict[str, bytes]):
    try:
        contents[__file__] = __self_source__
    except NameError:
        pass
```

Demo: Portable bridge

Rollout plan

- now: Fedora Rawhide, Debian unstable, Arch, Flatpak beta
- soon: Fedora 38, C9S/RHEL 9 devel
- never: Debian stable, Ubuntu 22.04 LTS, RHEL 8
- but all these OSes supported as connection targets

Q & A

Contact:

- #cockpit on Fedora Matrix
- https://cockpit-project.org