

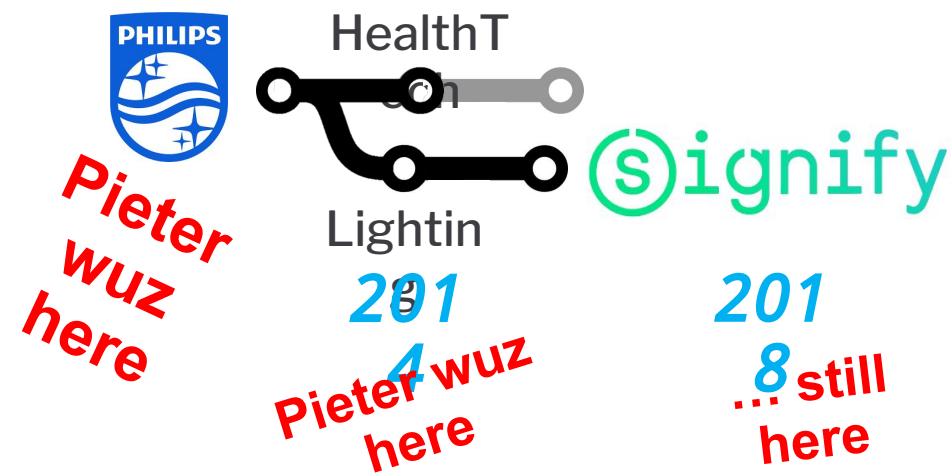


A Fruitful Relationship with OSS Open-Source Software at Hue



Pieter Smith, Home Systems, 10 October 2018

Background



\$ whoami

- SW Architect / Lead Dev @ Hue
- Work on Bridge, Cloud IF and security
- Contribute to OSS
- Active user of OSS ecosystem

Adopting OSS in Your Organization

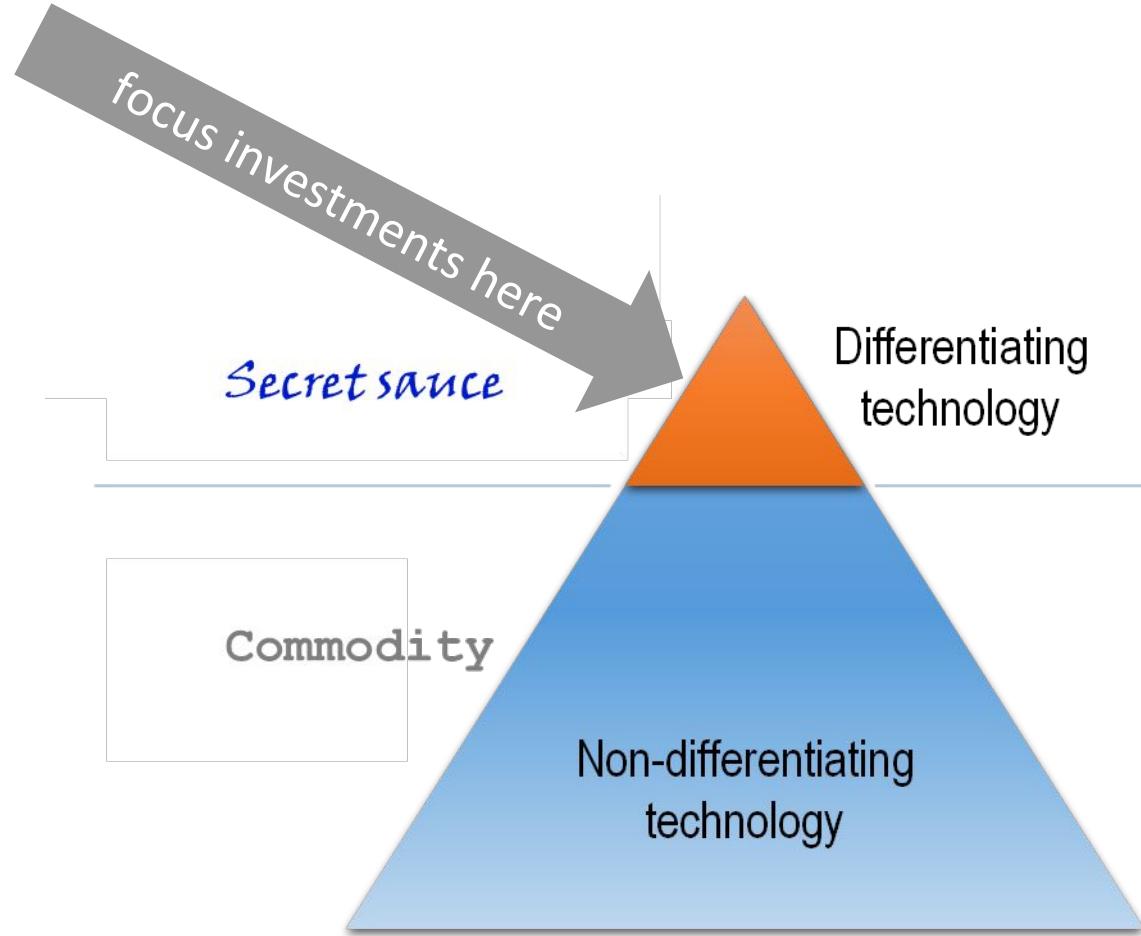
The Single Biggest Challenge



Fear . Uncertainty . Doubt

The Business Case for OSS

You can't afford to do everything anymore...

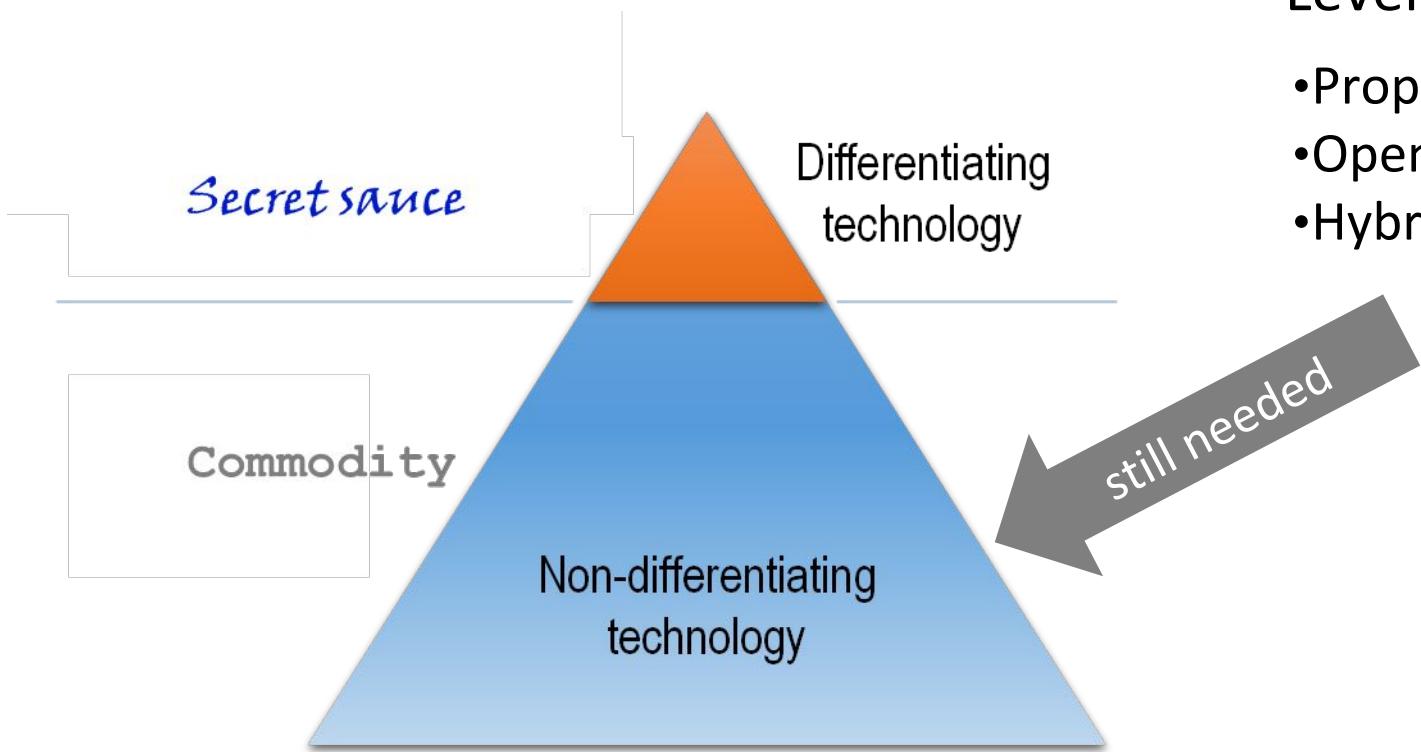


Increasingly *complex* products

Full *DIY* not practical

Functional *commoditization*

And the Non-differentiating parts?



Leverage:

- Proprietary stack vendors
- Open source software
- Hybrid of above

Proprietary stacks vendors

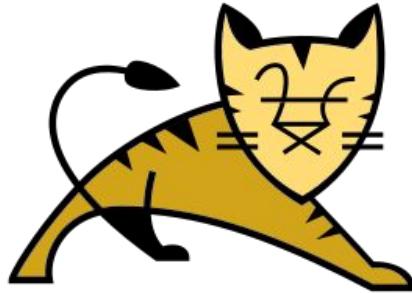
You pay *their* overhead

You invest in a *ball-and-chain*

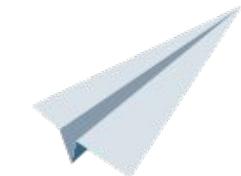
I.e. you pay to make *their* product *GREAT*



Best-of-breed selection



**Apache
Tomcat®**



LIGHTTPD
fly light.

NGINX



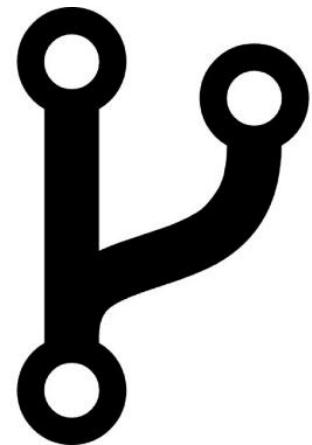
APACHE
HTTP SERVER PROJECT

Select components with healthy
communities (*and future*),

OR

Build/buy expertise to maintain it
yourself

Upgrade / fork



Upgrade:

- When it suits you
- Your *project requirements*
- Keep using *old versions* (business partners)

Fork project:

- Usually *last resort*
- Allowed (encouraged) by *OSS license*
- Pick *own direction* (development, maintenance)

Quality, validation and review



Healthy projects have large ecosystems

On average quality of OSS is *better*

Confirmed by Coverity scan

"given enough eyeballs, all bugs are shallow" – Eric S Raymond

Security

Open-source

Myth: helps attackers find vulnerabilities

Developers care about their *reputations*

Responsiveness



Not always good: Evaluate individual OSS projects (*security + reputation*)

OSS = sensible investment

Adopting OSS

Refresher: OSS Licensing Models



Academic / Permissive licenses



Let's make code available to others!
Do as you please...



Reciprocal / Copyleft licenses



Code should remain free!
Free as in Freedom...

OSS Licenses Implications

Rights

- Use code
- Modify code
- Distribute code

Obligations

Some examples:

- Acknowledge use
- Provide license to recipient
- Mark modifications
- Provide complete corresponding source
- Provide build / install instructions
- Enable end-user update
- Grant patent license

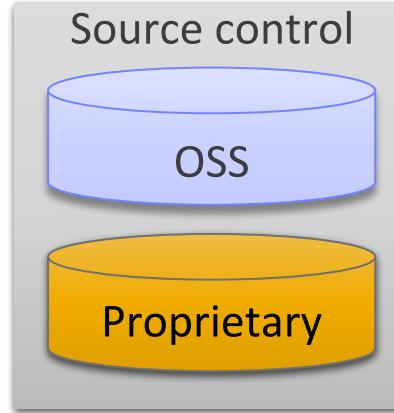
How to Meet the Obligations

- **Isolate:** *proprietary / open-source* components
- **Keep track:** *components + licenses*
- **Bridge:** *legal + software* domains
- **Distribute:** *acknowledgements + license texts*
- **Distribute (on request):** *Complete Corresponding Sources*
(Copy-left only)

Meet the obligations

Technical adjustments

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Meet the obligations

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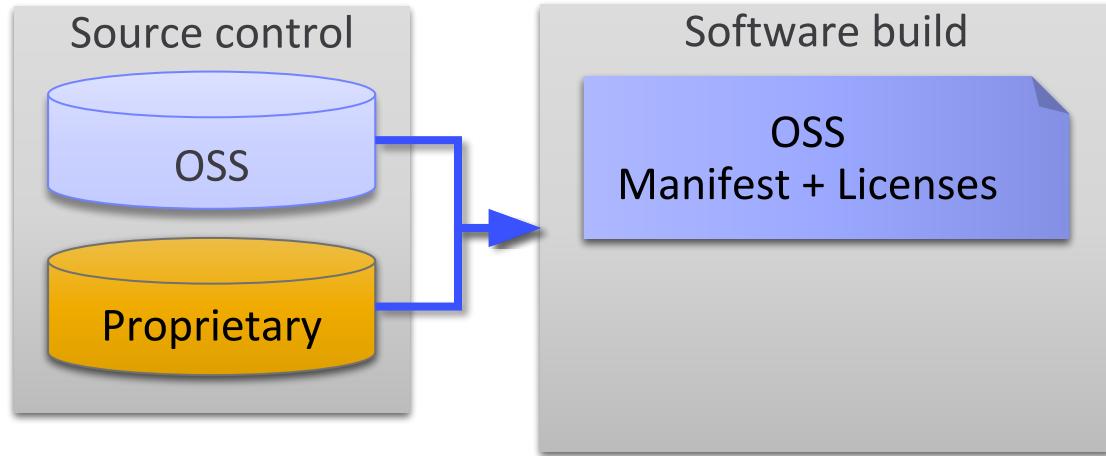
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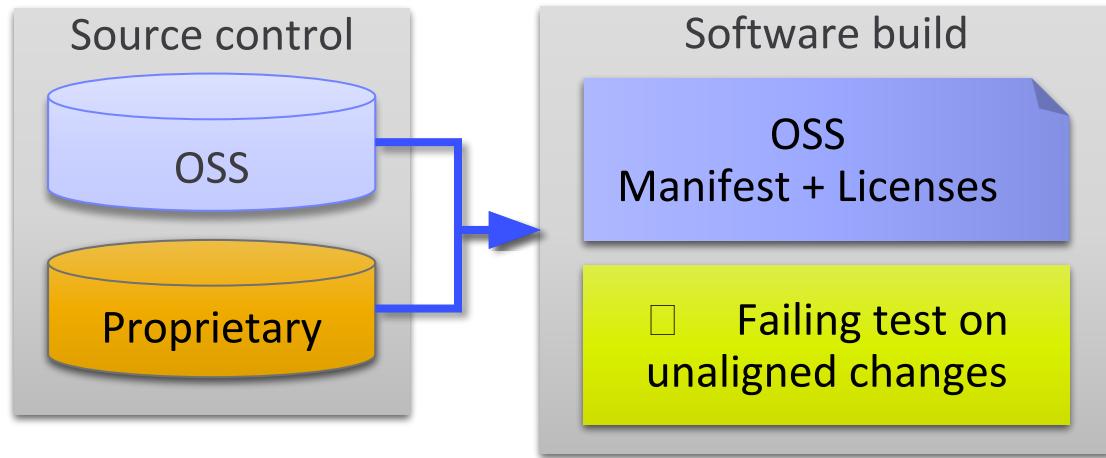
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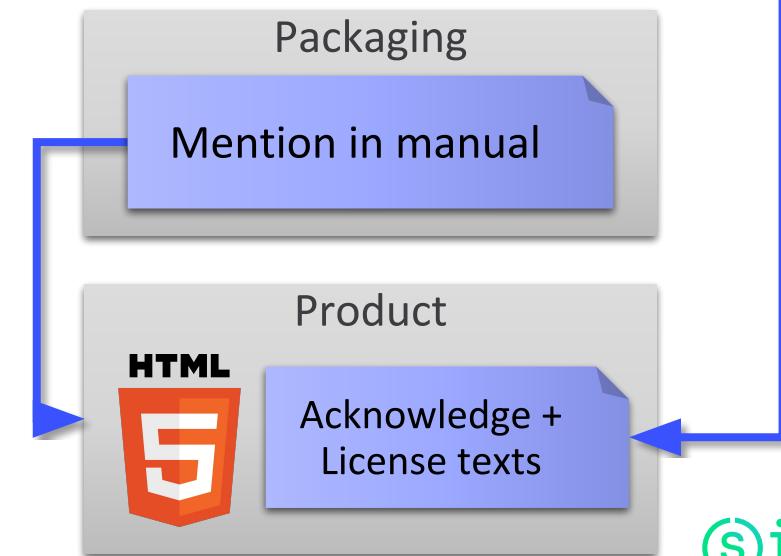
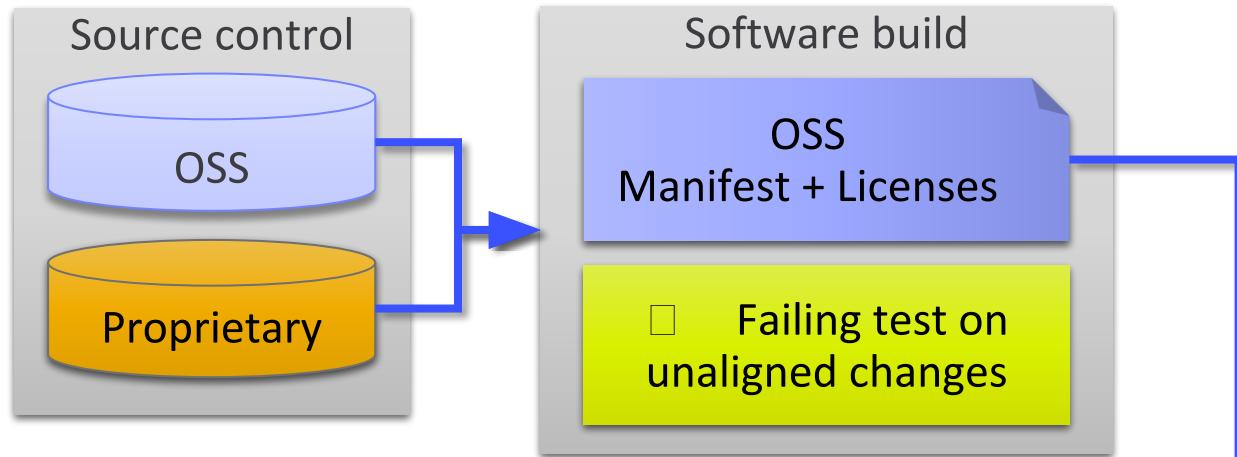
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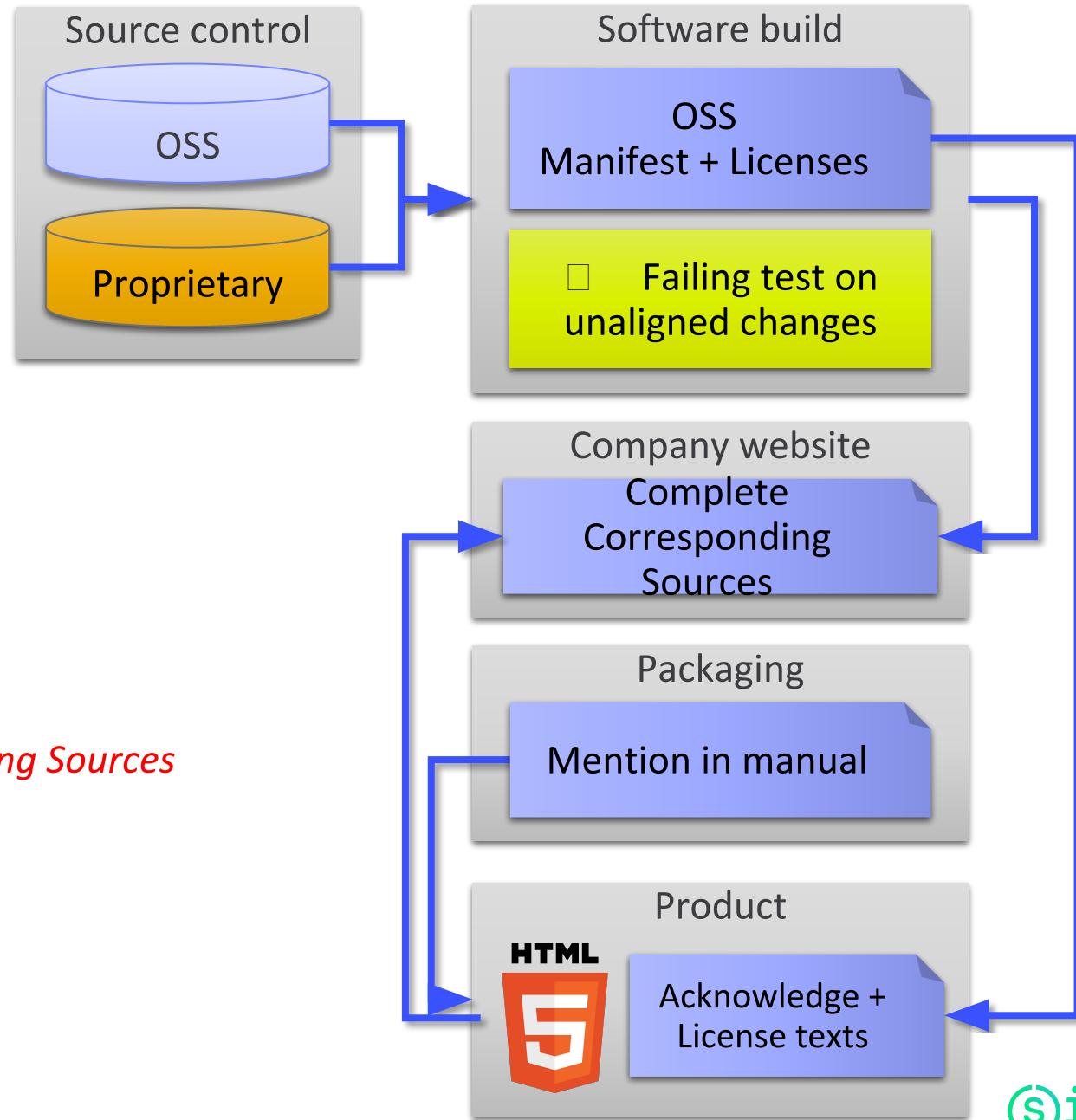
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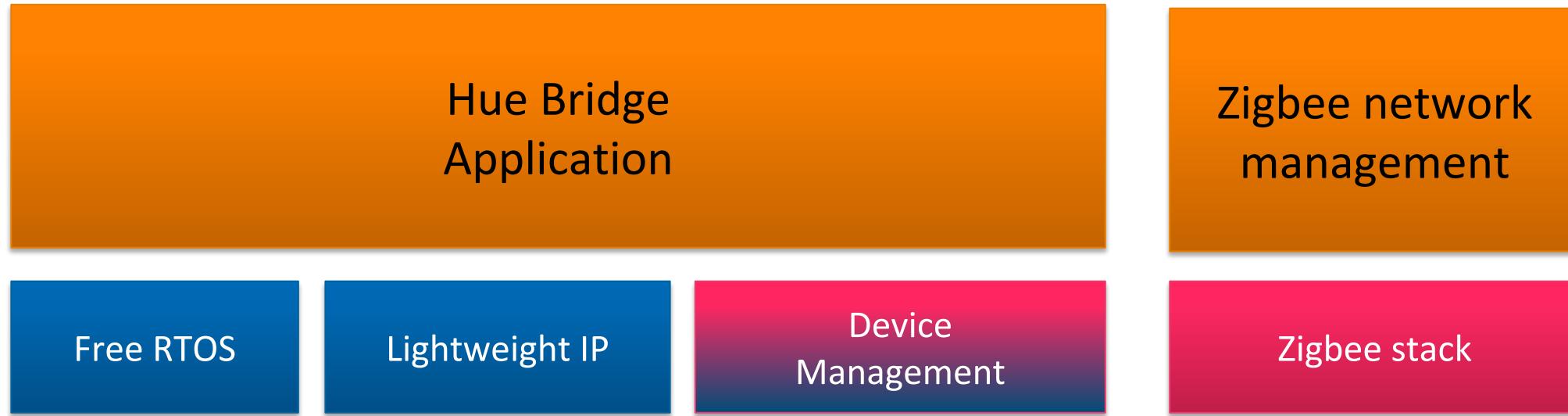
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Hue System

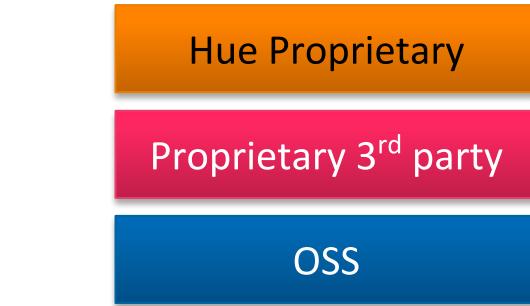


Bridge V1.x



Disclaimer: Illustrative... Not technically accurate

Bridge V1.x



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Hue Bridge V2.x

Introduce Apple Homekit

Hue Proprietary

Proprietary 3rd party

OSS



Hue Bridge
Application

Crypto Libs

Linux

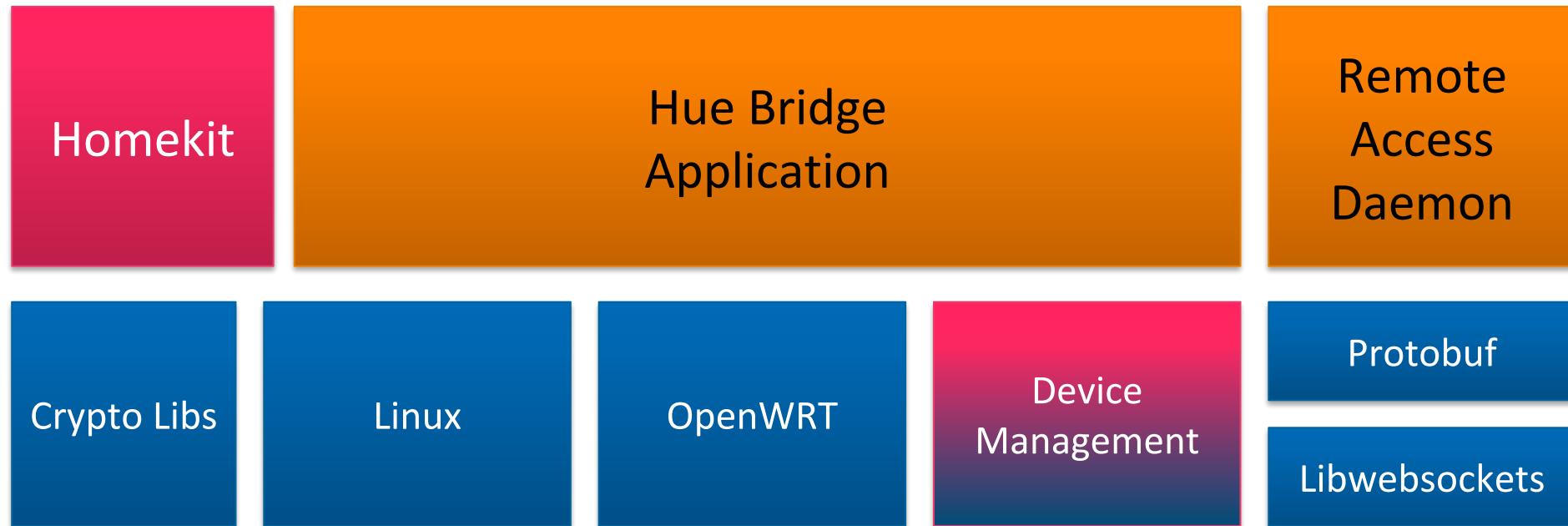
OpenWRT

Device
Management

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Hue Bridge V2.x

Improve remote access



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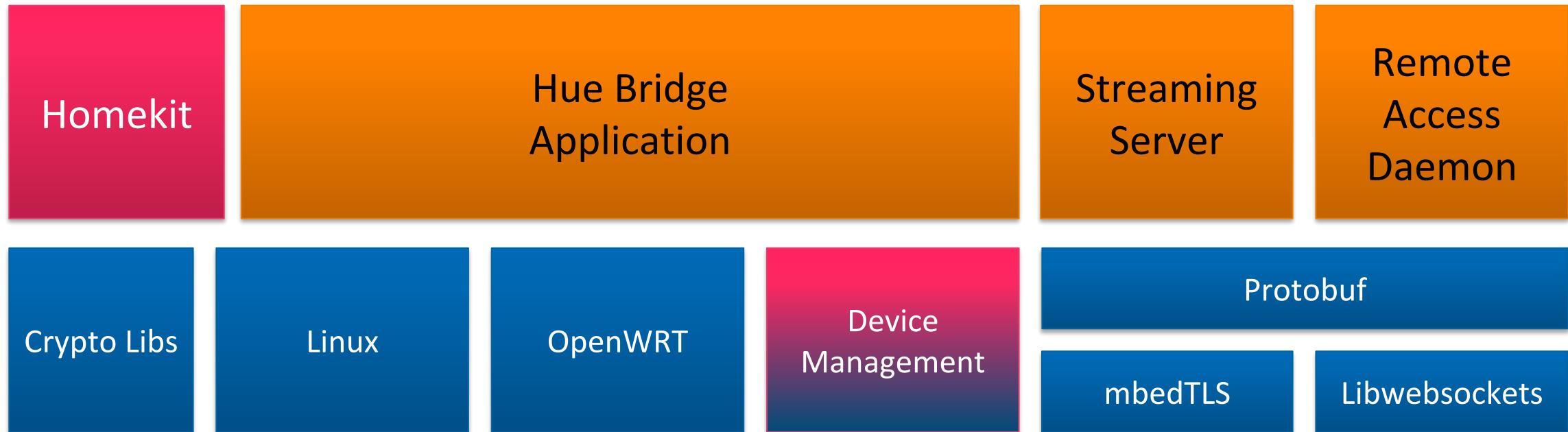
Hue Bridge V2.x

Introduce Hue Entertainment (Sync lights with media / games)

Hue Proprietary

Proprietary 3rd party

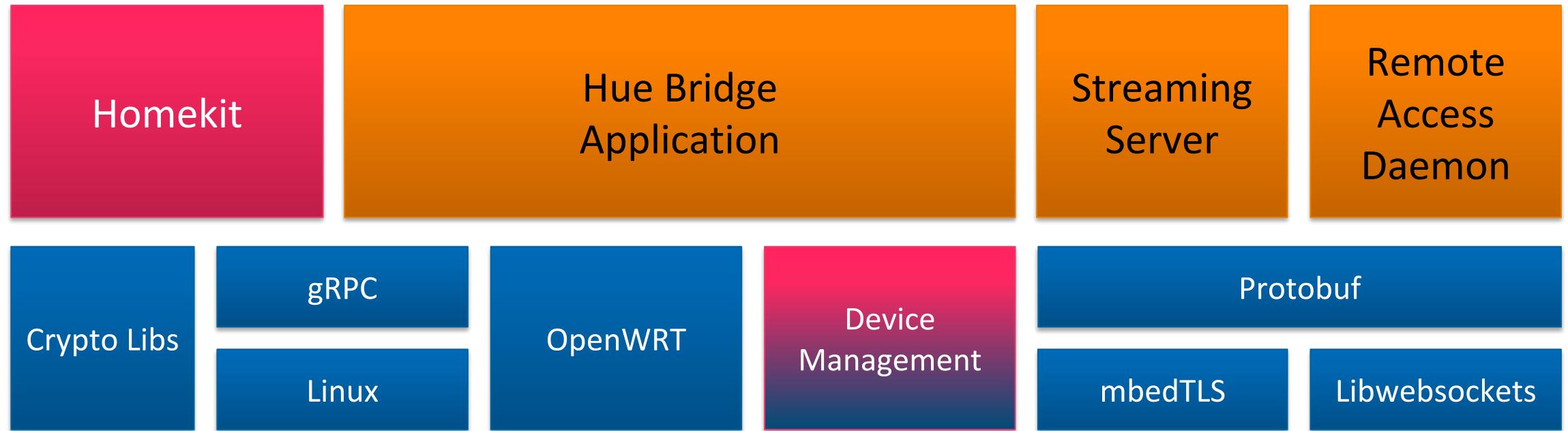
OSS



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Hue Bridge V2.x

Architectural IPC improvements



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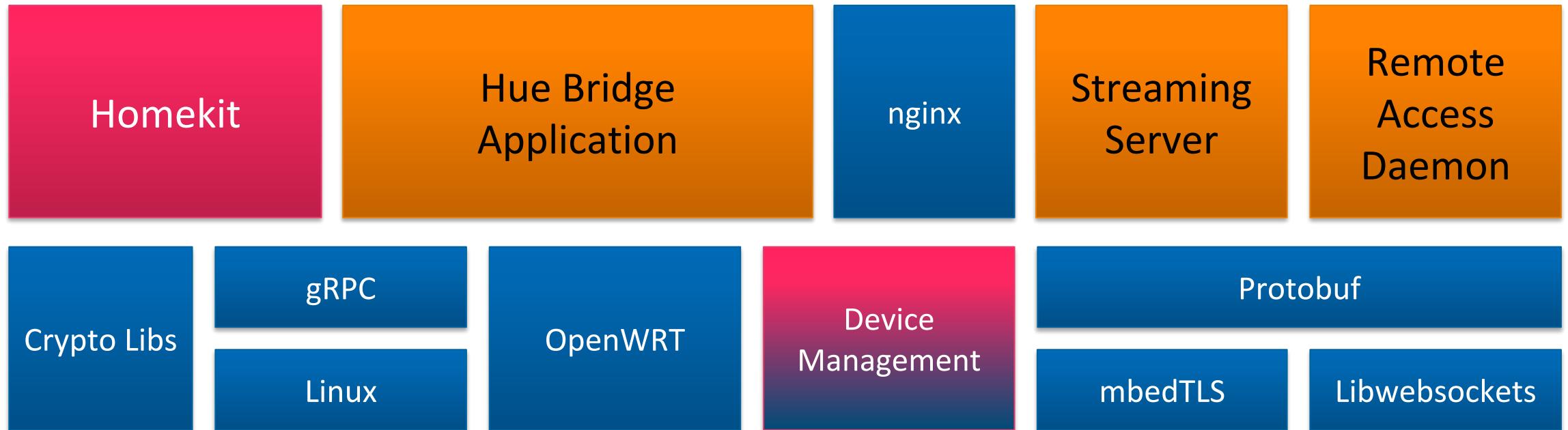
Hue Bridge V2.x

In-home encryption (https)

Hue Proprietary

Proprietary 3rd party

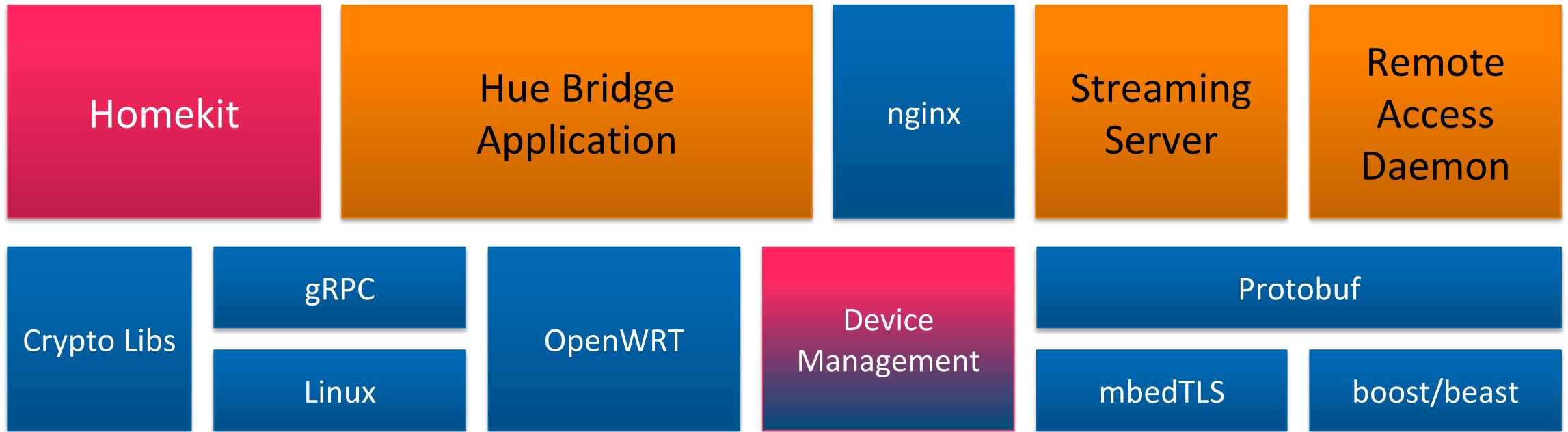
OSS



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Hue Bridge V2.x

Transition from C to C++



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Getting the Full Benefit

- ❑ Get involved: *file bugs and provide test capacity* to community
- ❑ Work with upstream: *fix bugs and improve* with community

Why?

Rub shoulders with best programmers out there

Share *cost of maintenance*

- ❑ Open up software: build *community* around existing *non-differentiating* software
- ❑ Develop in the open: Develop new *non-differentiating* software in the open

Why?

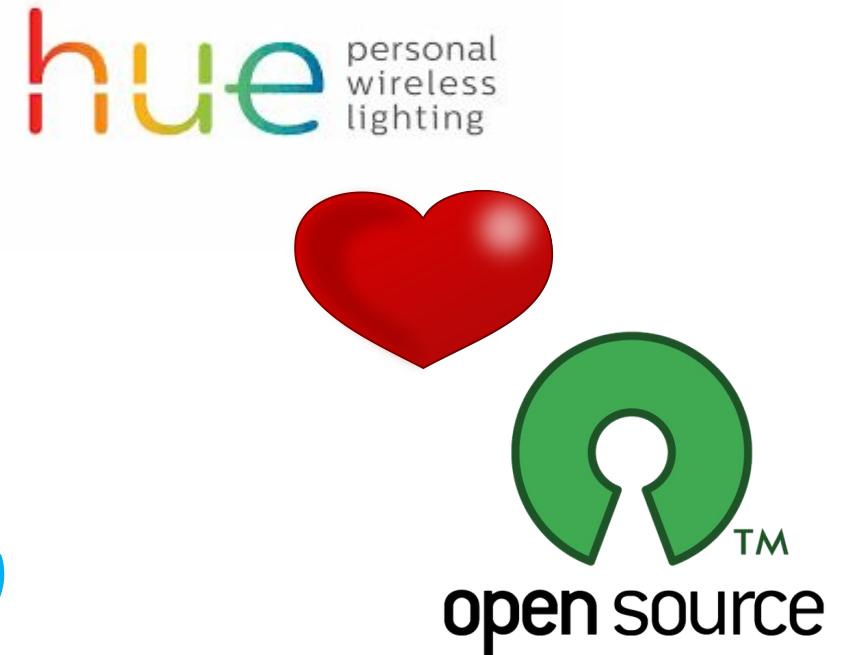
Tap mind-share

Share costs of development

Conclusions

- Hue is *happy* with OSS
- OSS makes *business sense*
- In long run, OSS is *cheaper* (not free)
- FUD can be *beaten*

If you like what you hear, we are hiring ;-)



Consider adopting OSS yourself

The logo for Signify features a white 'S' character enclosed within a thin white circle. To the right of the circle, the word 'signify' is written in a lowercase, sans-serif font.