Blink architecture & layering

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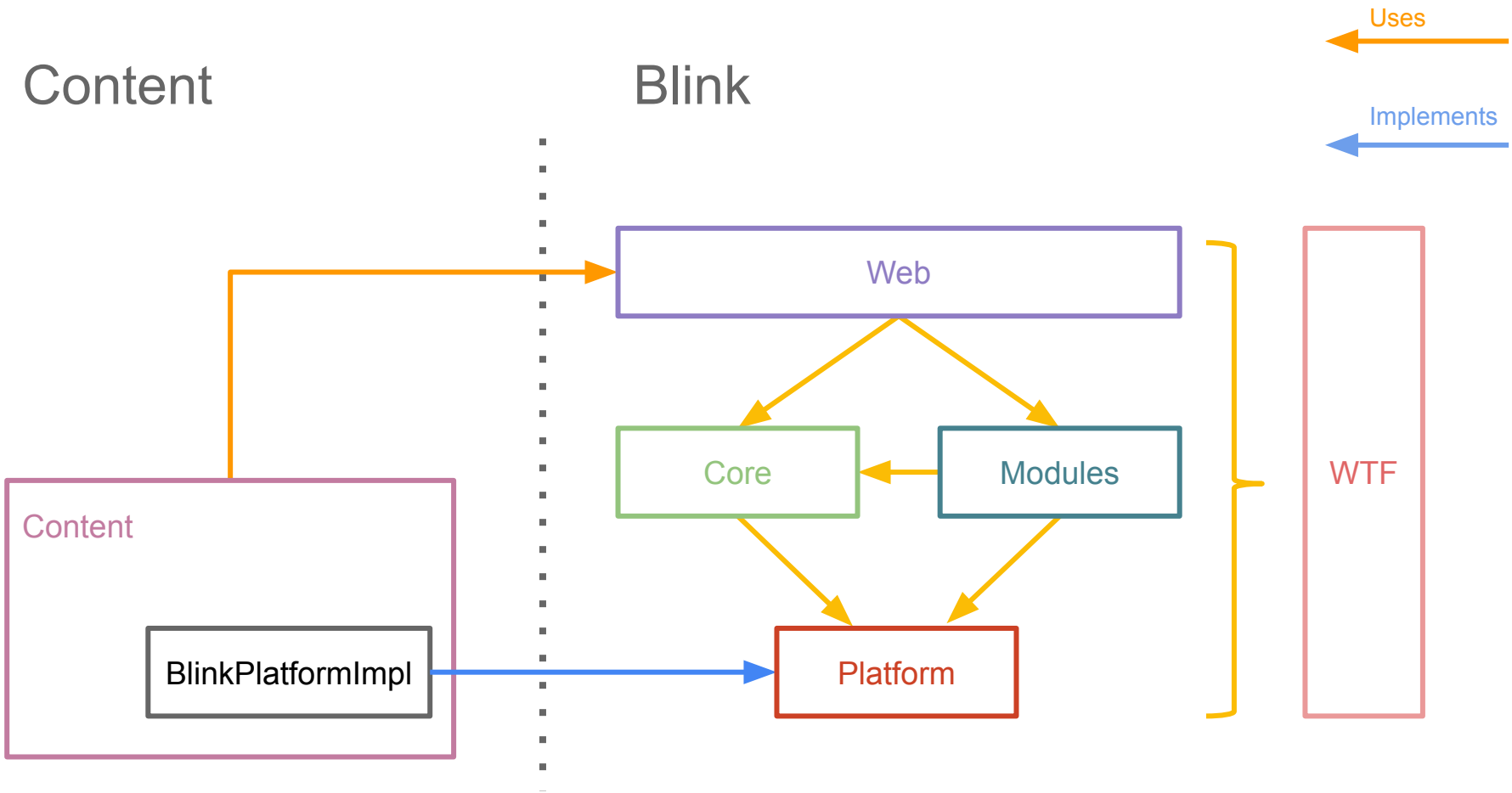
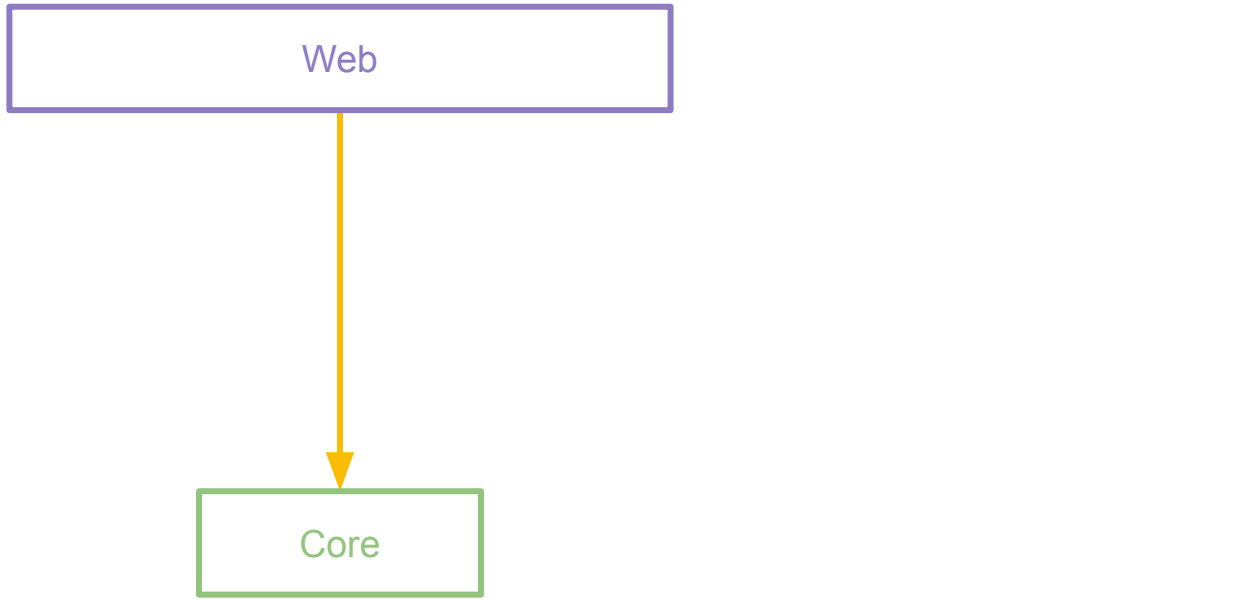
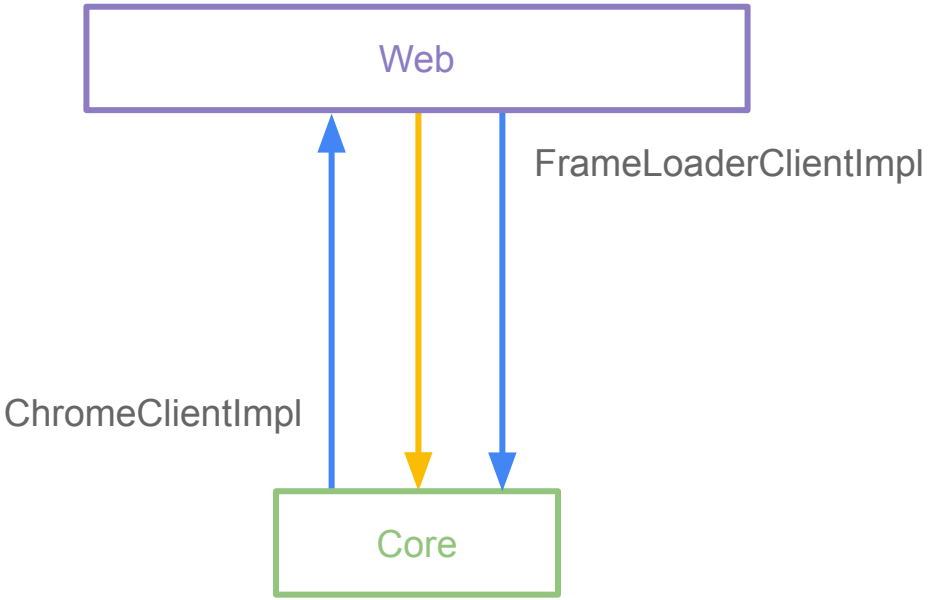
Now


Uses
Implements
Content
Blink
Web
Core
Modules
WTF
Content
BlinkPlatformImpl
Platform

Web uses Core



Actually more complicated



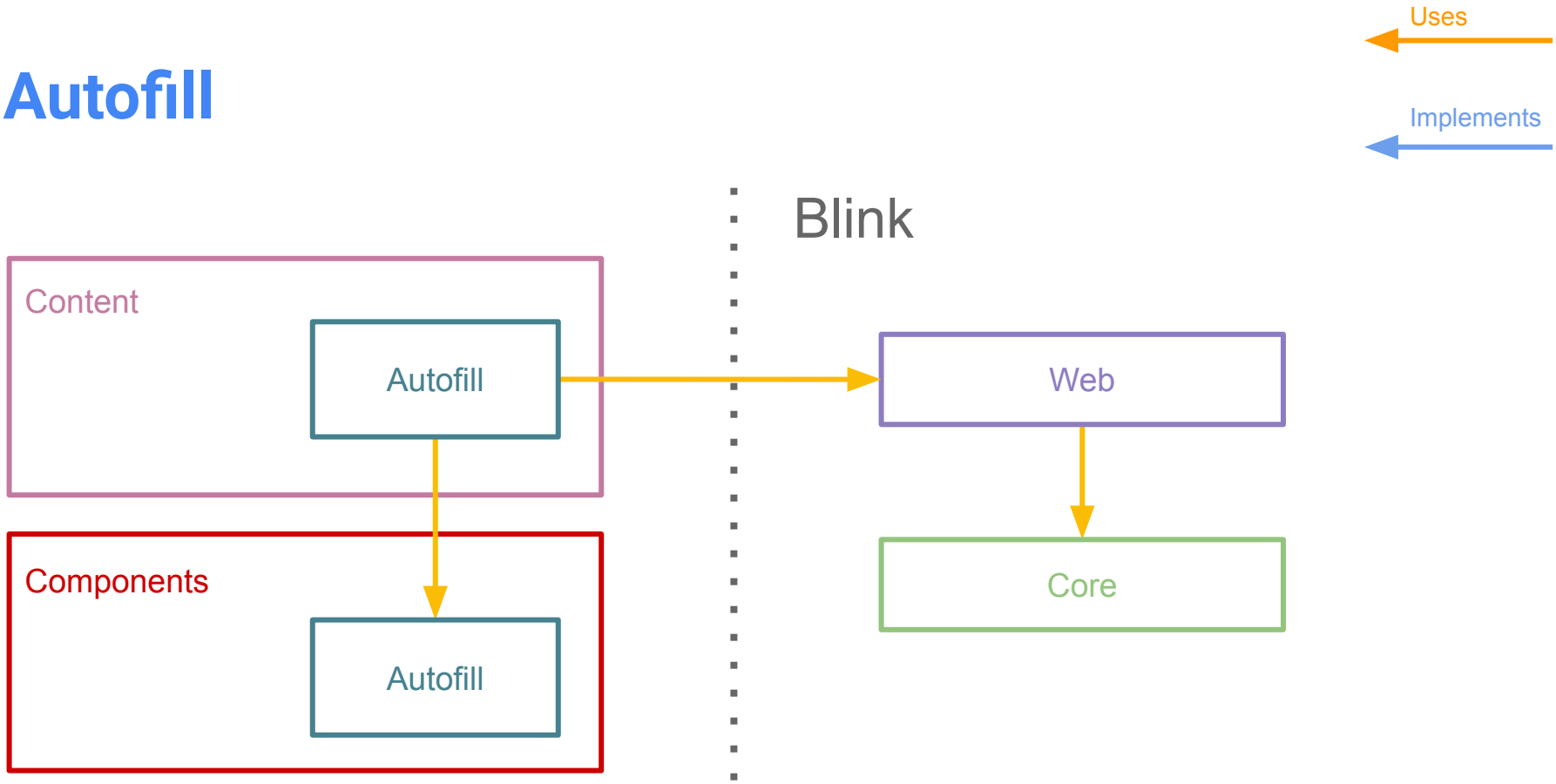
Core schedules a frame

ScrollableArea::scheduleAnimation()
- HostWindow::scheduleAnimation() (Platform)
- ChromeClient::scheduleAnimation() (Core)
- ChromeClientImpl::scheduleAnimation() (Web)
  - WebViewImpl::scheduleAnimation() (Web)
    - WebLayerTreeView::setNeedsBeginFrame()
    - RenderWidgetCompositor::setNeedsBeginFrame() (Content)
      - LayerTreeHost::SetNeedsAnimate() (cc)

JS does performance.now()

… js bindings …
PerformanceBase::now() (Core)
WTF::monotonicallyIncreasingTime() (WTF)
WTF::*monotonicallyIncreasingTimeFunction (WTF)
monotonicallyIncreasingTimeFunction (Web)
Platform::monotonicallyIncreasingTimeSeconds
BlinkPlatformImpl::monotonicallyIncreasingTimeSeconds() (Content)
base::TimeTicks::Now()

Autofill


Uses
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Blink
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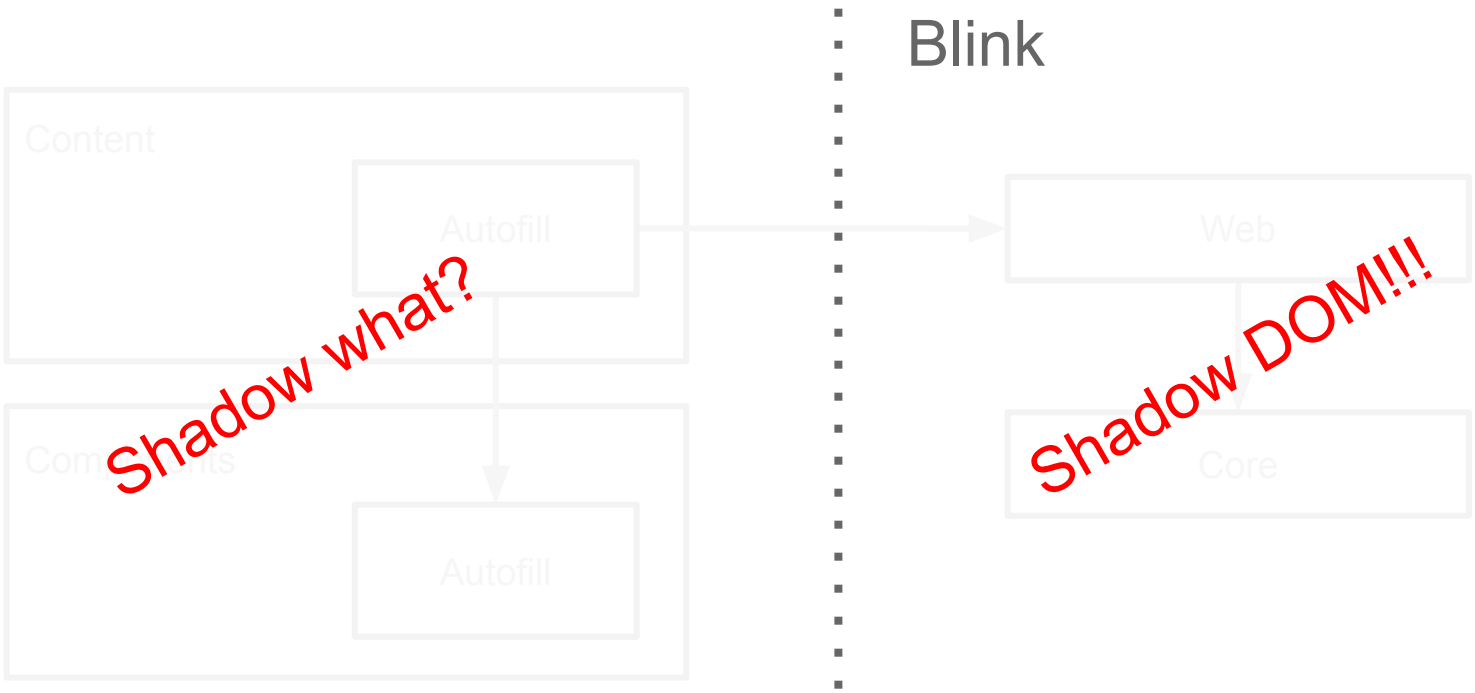
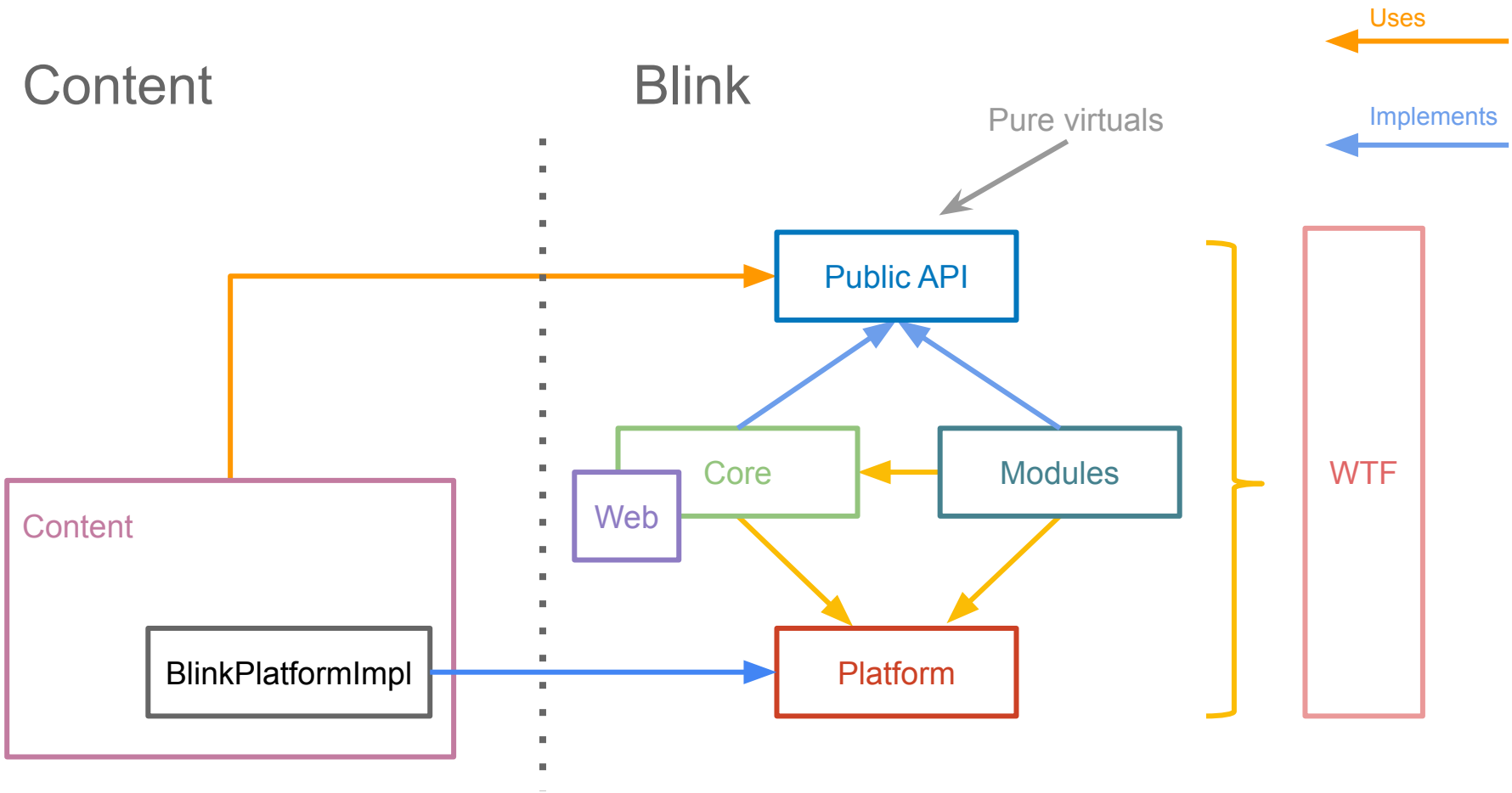
Autofill
Components
Autofill
Web
Core

Autofill

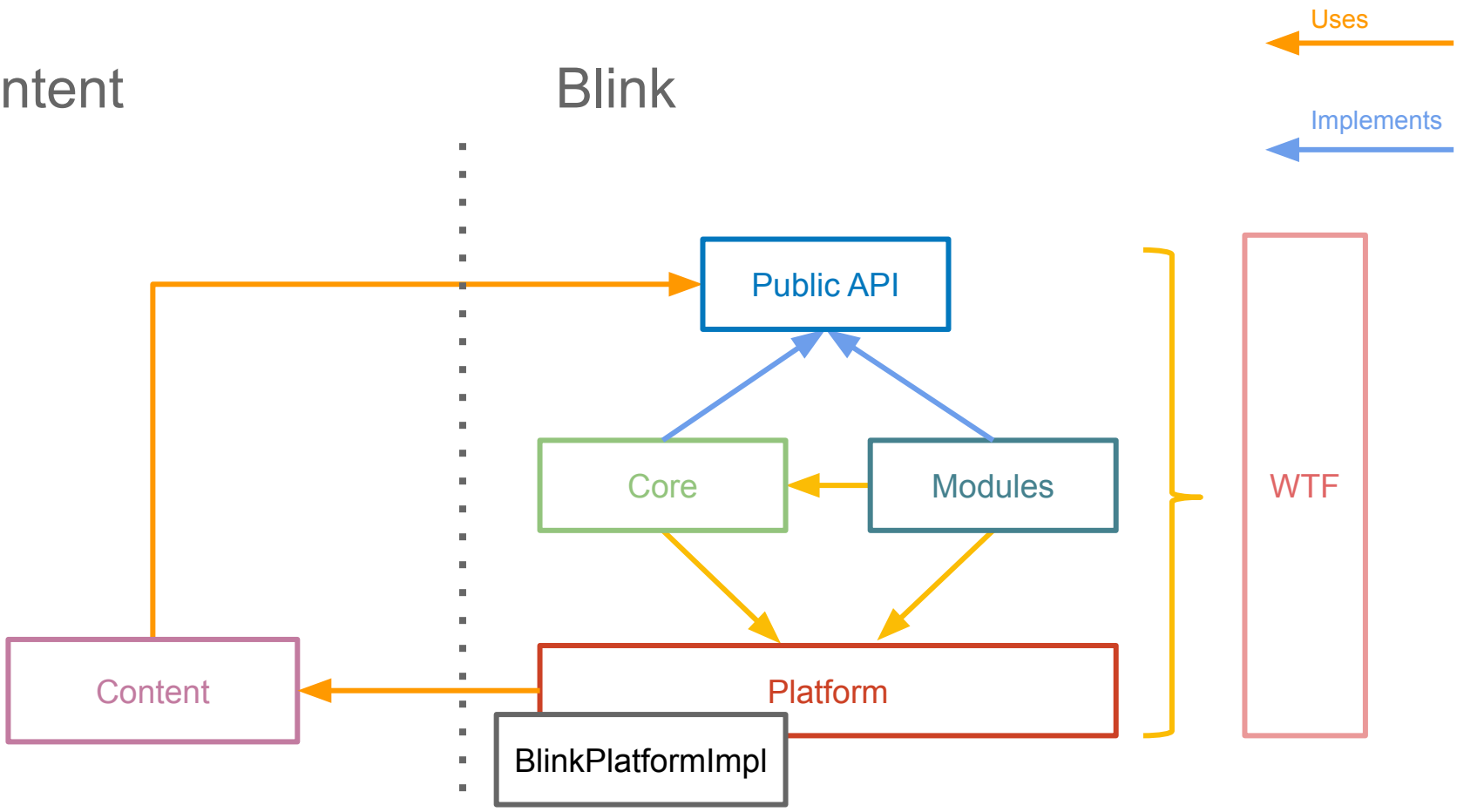

Blink
Content
Autofill
Web
Shadow what?
Shadow DOM!!!
Core
Autofill

Fixing it

Introduce an API


Content
Blink
Uses
Implements
Pure virtuals
Public API
Content
BlinkPlatformImpl
Web
Core
Modules
Platform
WTF

Remove some abstractions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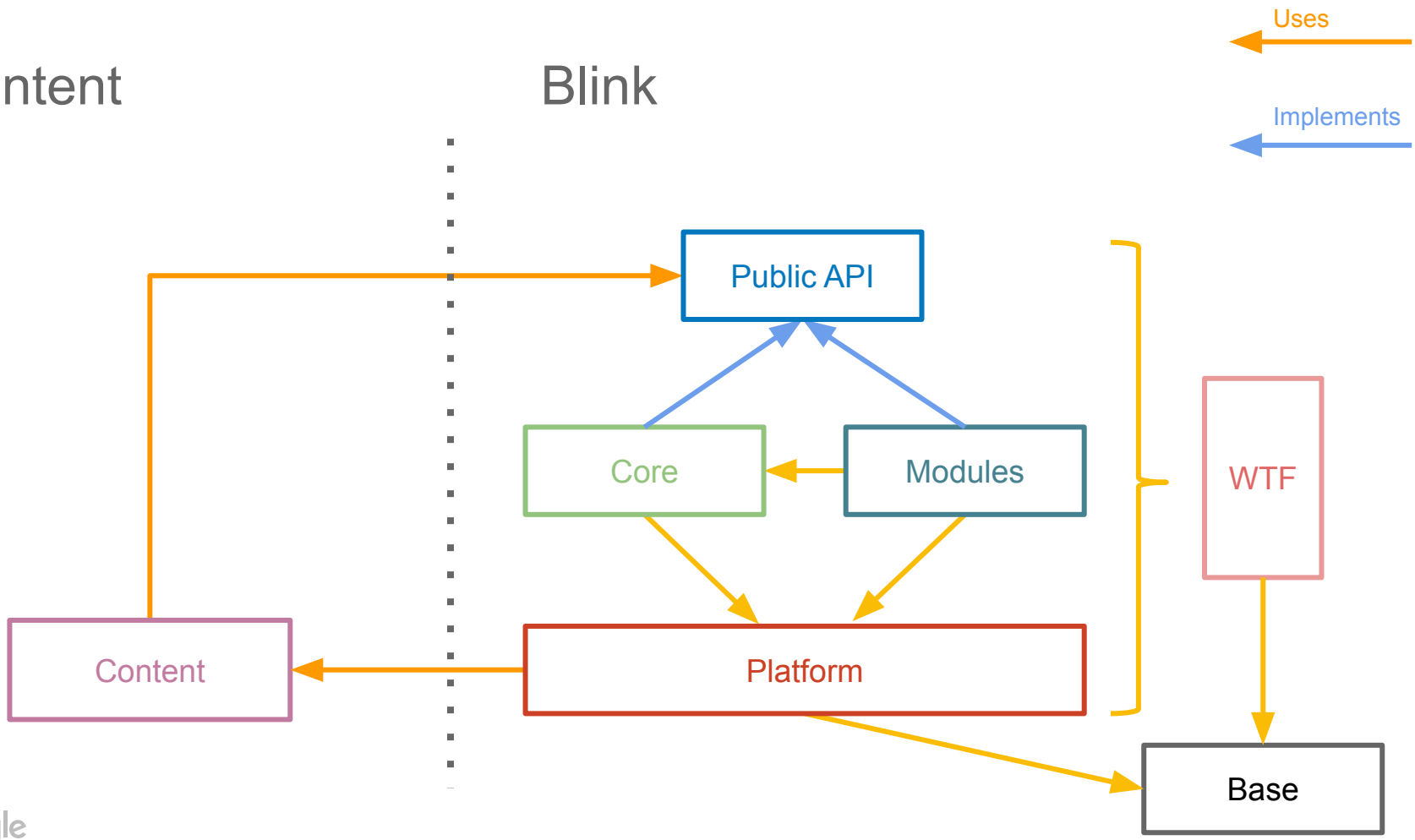
Platform
BlinkPlatformImpl

Remove MORE platform abstractions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Implements
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Public API
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Content
Platform
Base

Expose high level services

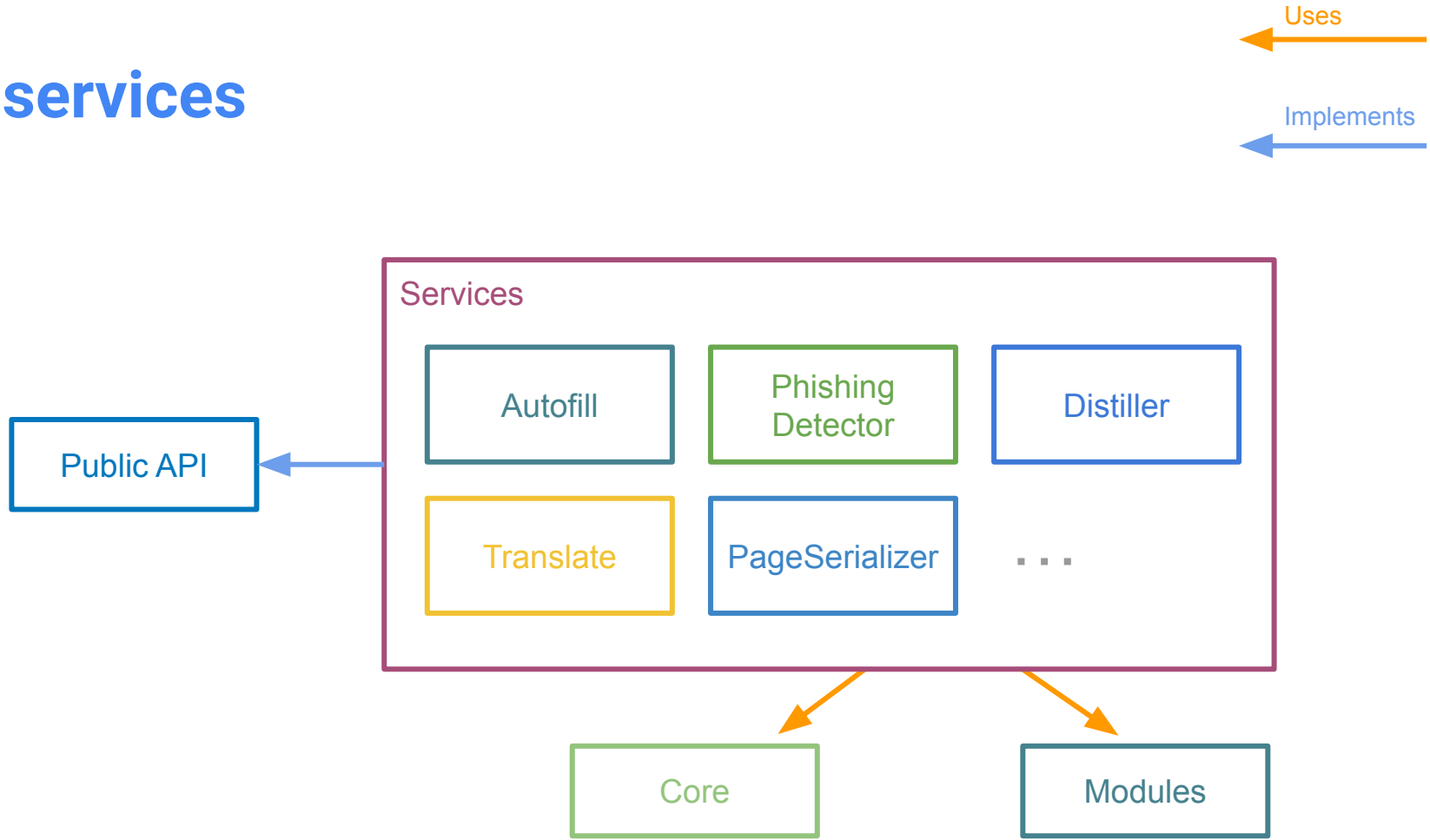
Web modules

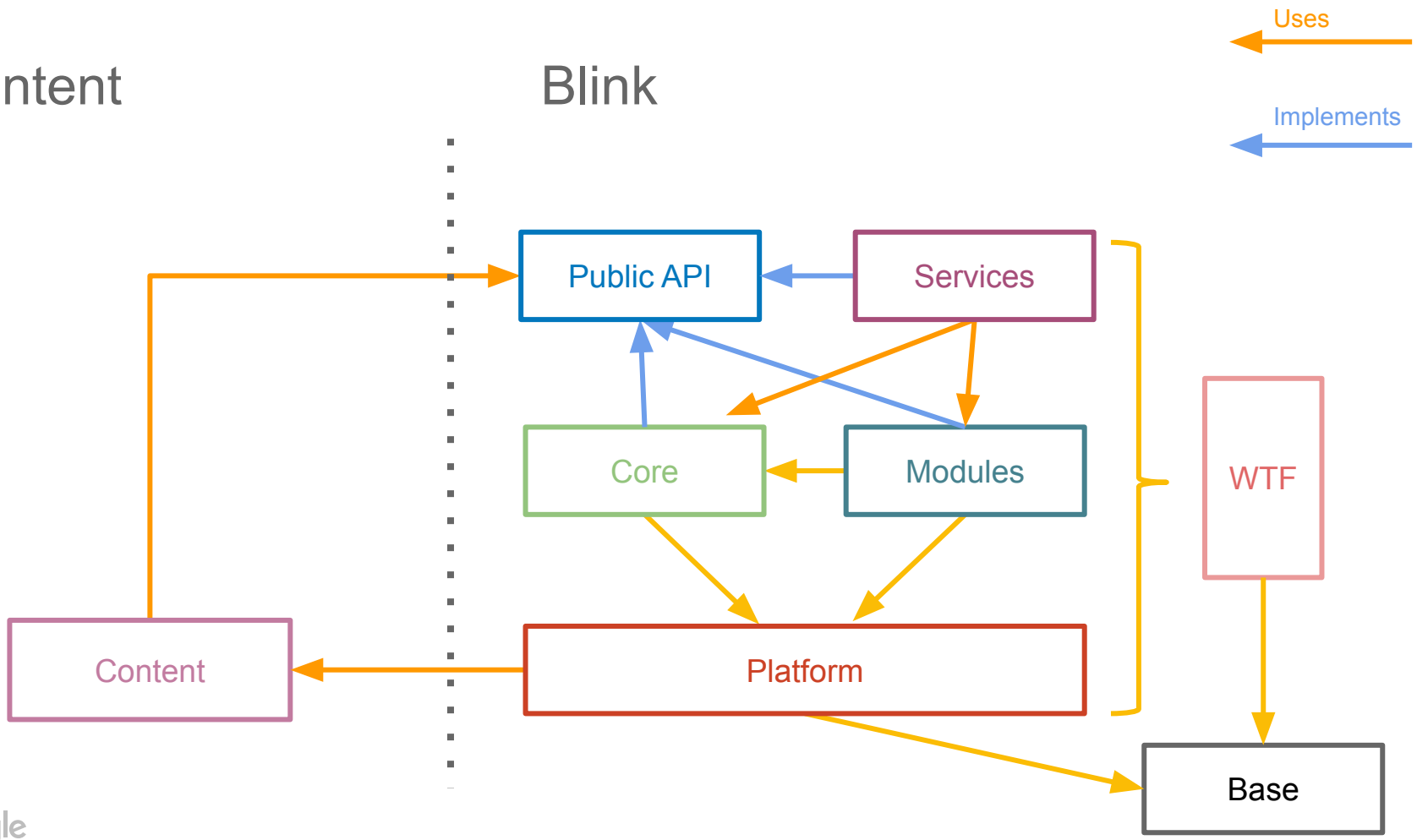
- Written in C++
- Generated DOM API from idl
- Testability

Web modules (cont.)

- Provides richer DOM API
- Encourages using primitives
- Pushes the web forward

Our services

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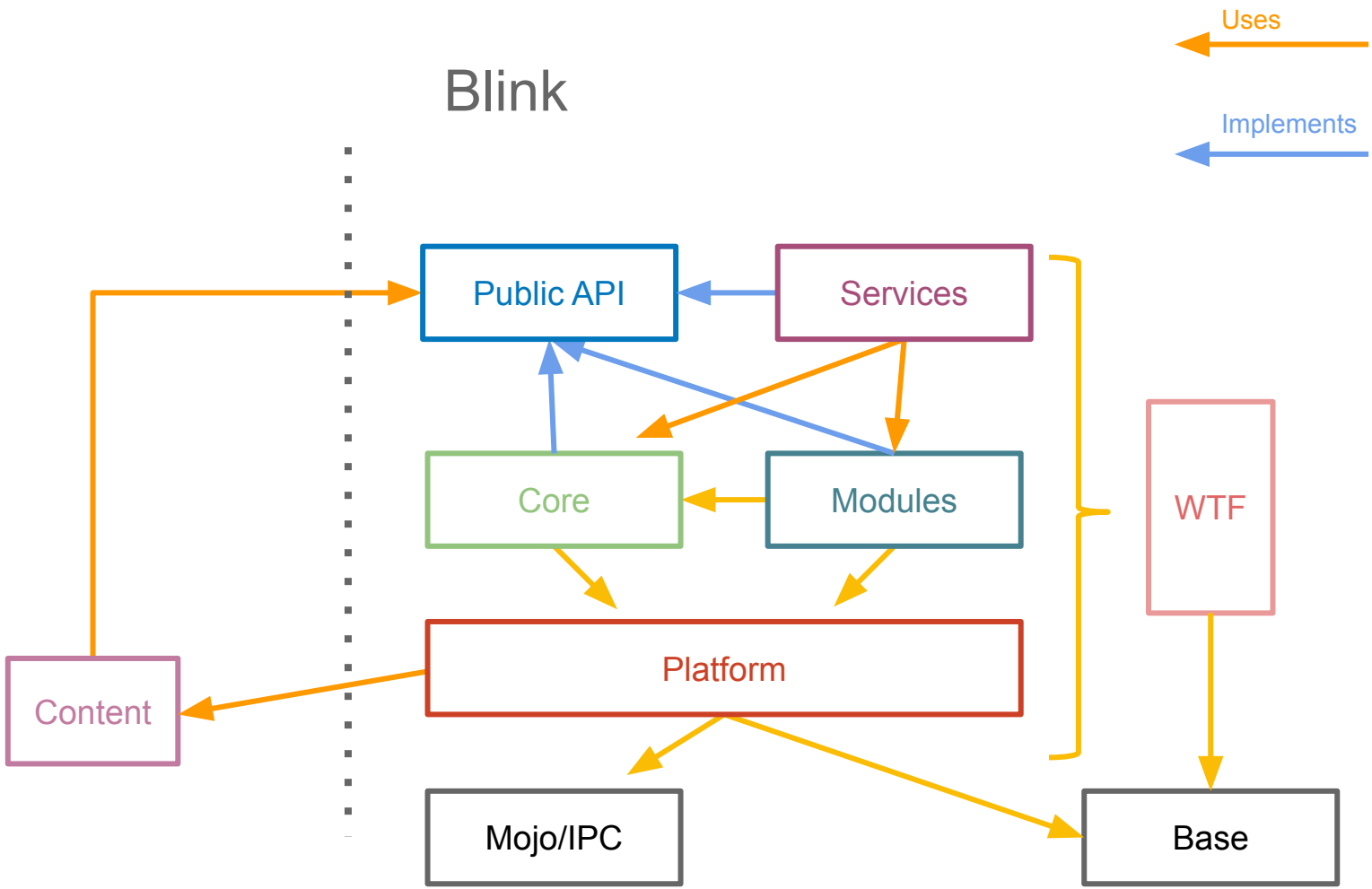
Simplify IPC


Content
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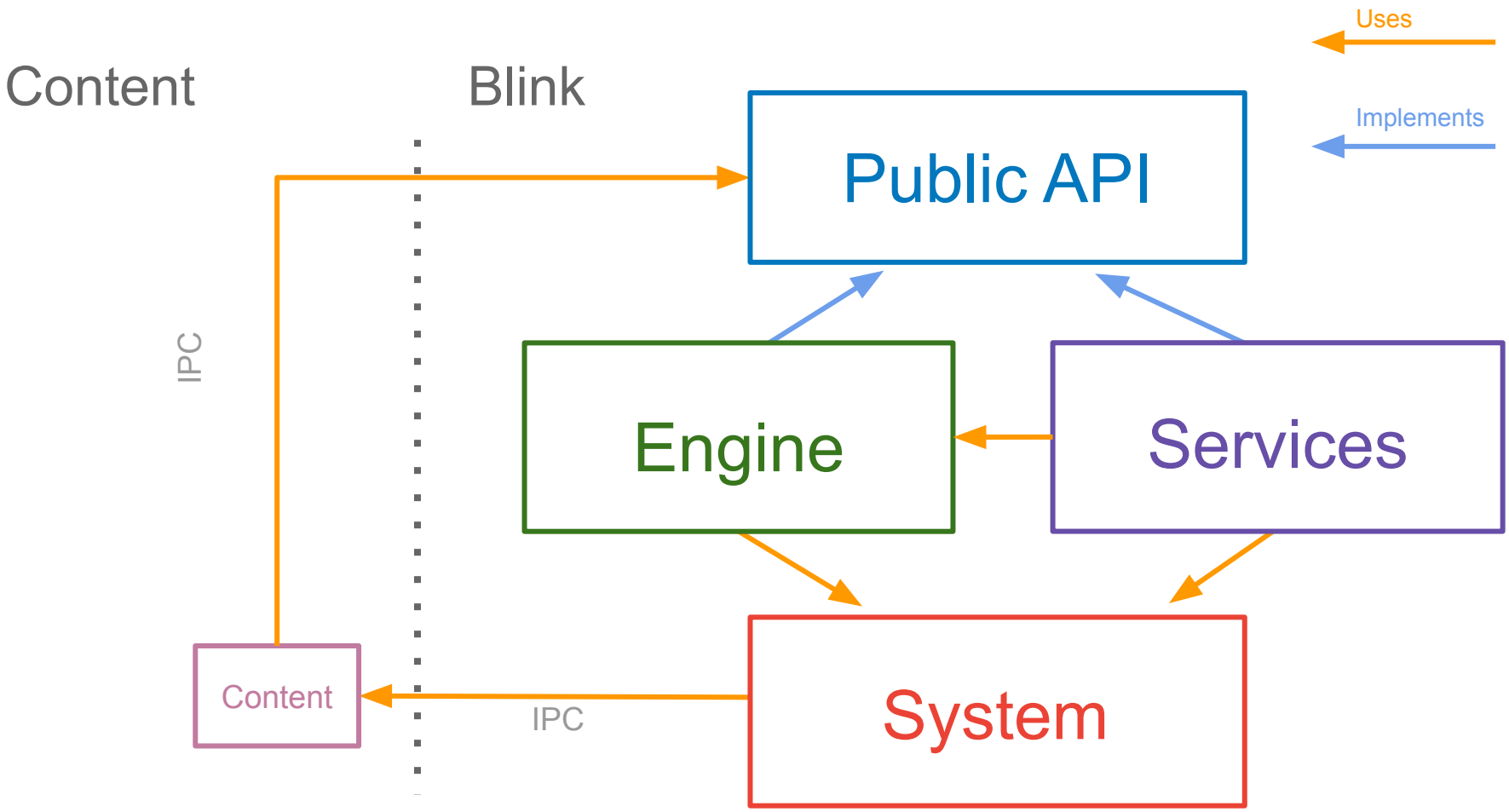
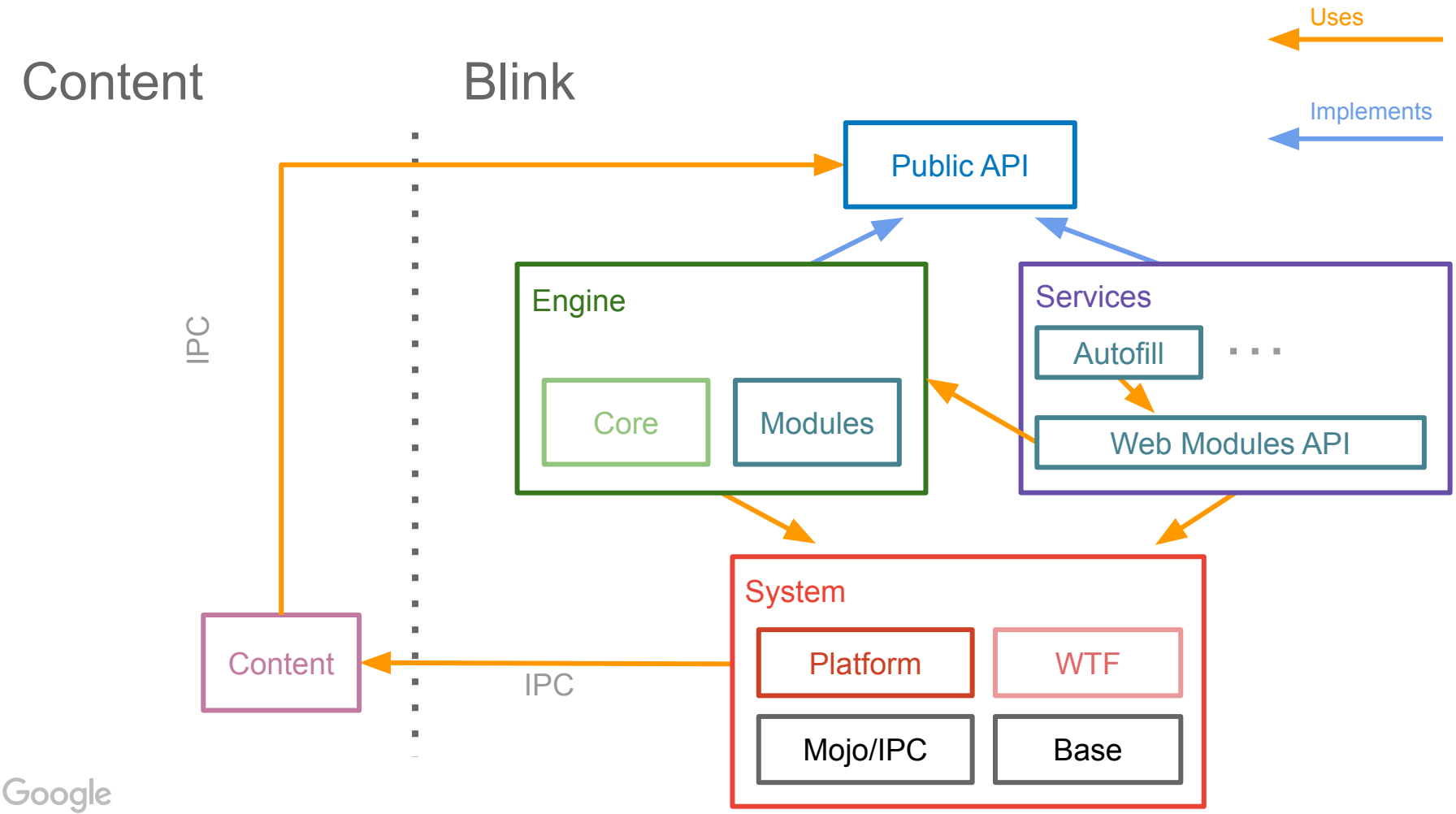
Services
Core
Modules
WTF
Platform
Content
Mojo/IPC
Base

Group components


Uses
Implements
Content
Blink
Public API
IPC
Engine
Services
Content
IPC
System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Autofill
Web Modules API
System
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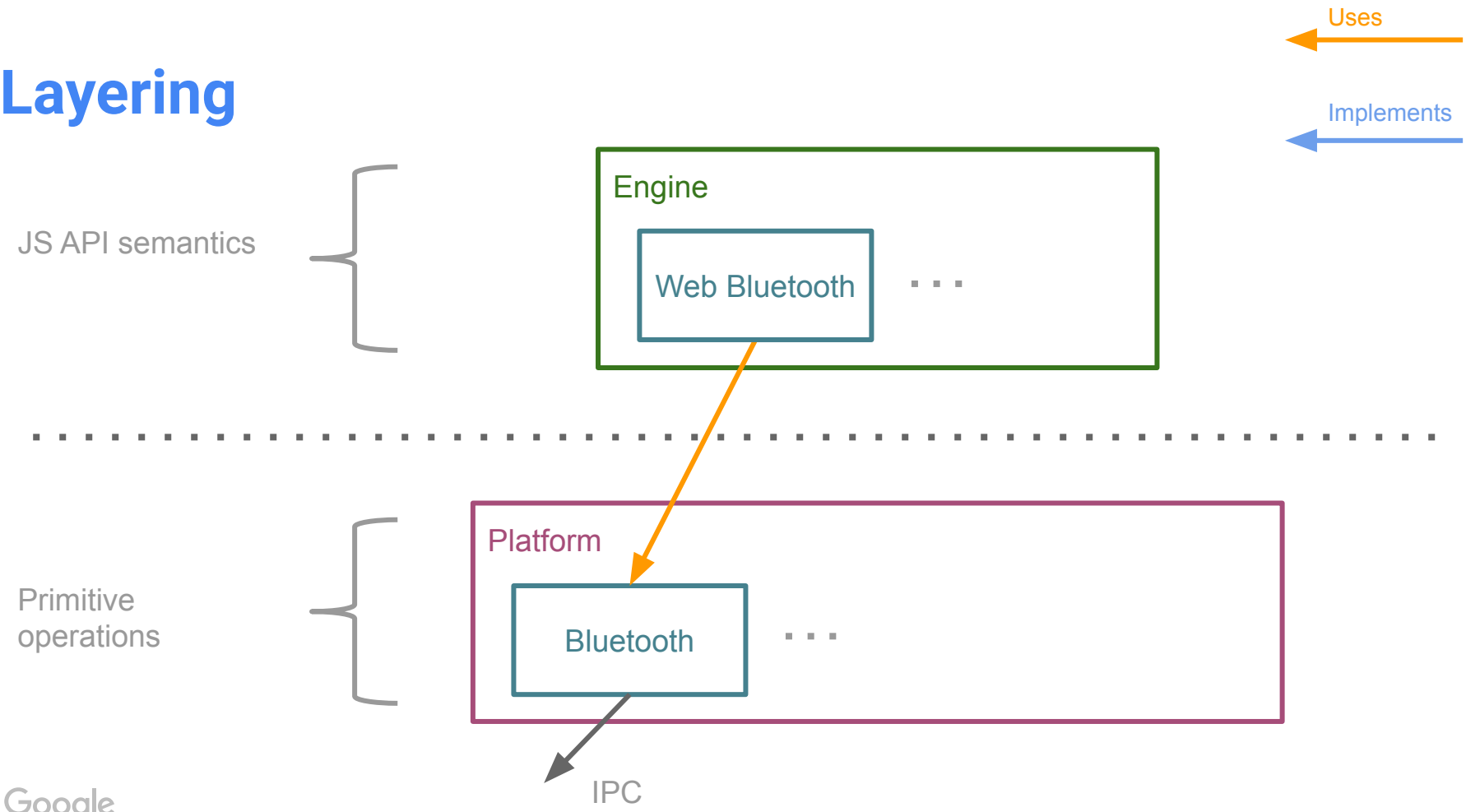
Mojo/IPC
Base
Content
IPC

New platform

- Most of content/renderer moves here
- Implementation abstractions
- Testability layer

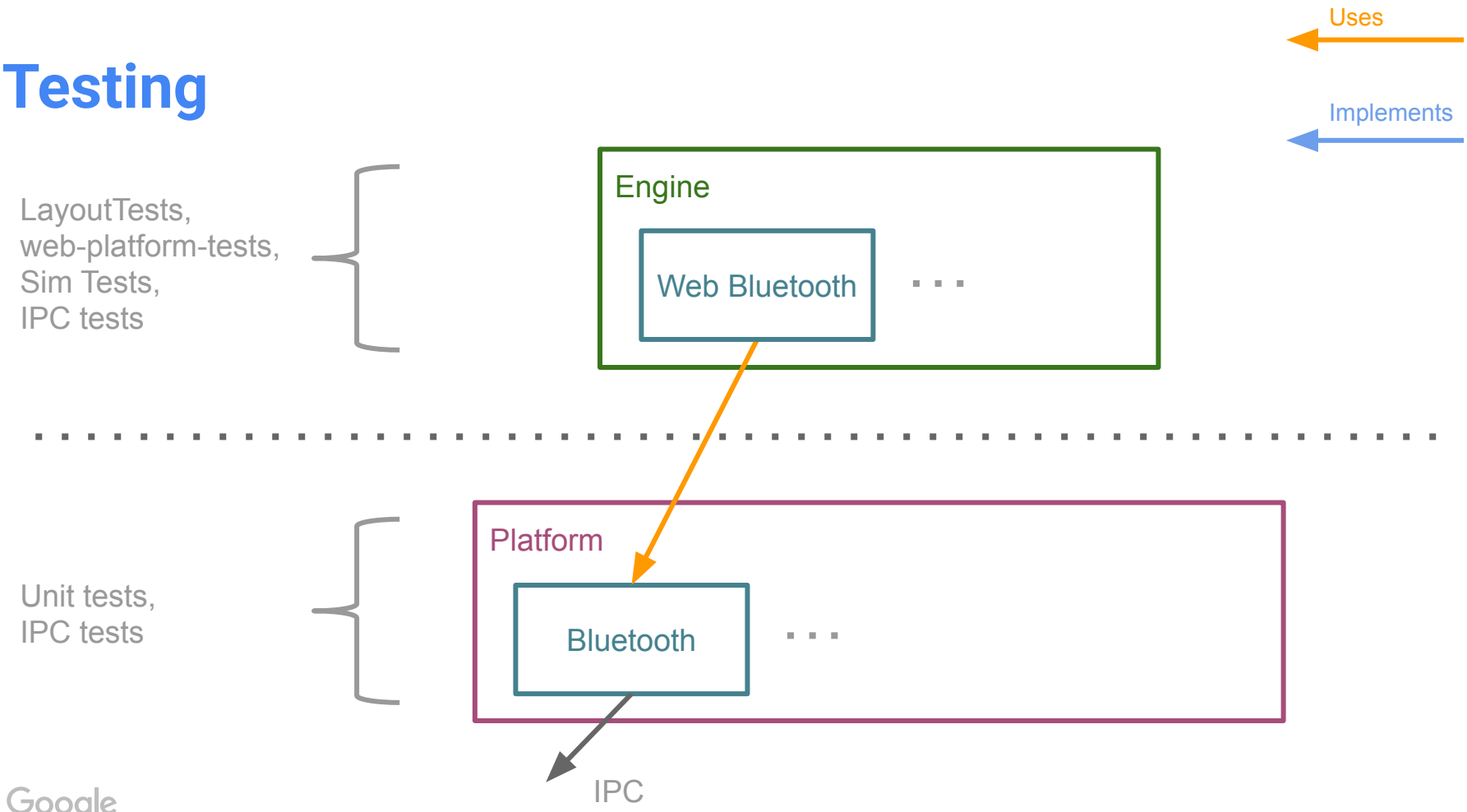
Layering


Uses
Implements
JS API semantics
Engine
Web Bluetooth
. . .
Primitive operations
Platform
Bluetooth
. . .
IPC

Testing

- Platform operations easily tested
- Assert expected IPC outputs
- Engine mocks platform as needed

Testing


Uses
Implements
LayoutTests,
web-platform-tests,
Sim Tests,
IPC tests
Engine
Web Bluetooth
. . .
Unit tests,
IPC tests
Platform
Bluetooth
. . .
IPC

Blink Onion Soup

Goals

- Deliver better abstractions
- Empower unit testing
- Encourage using primitives

Future projects

- Merge WTF into base?
- Use WTF types outside Blink?
- Switch IPC to Mojo

Thanks BlinkOn!