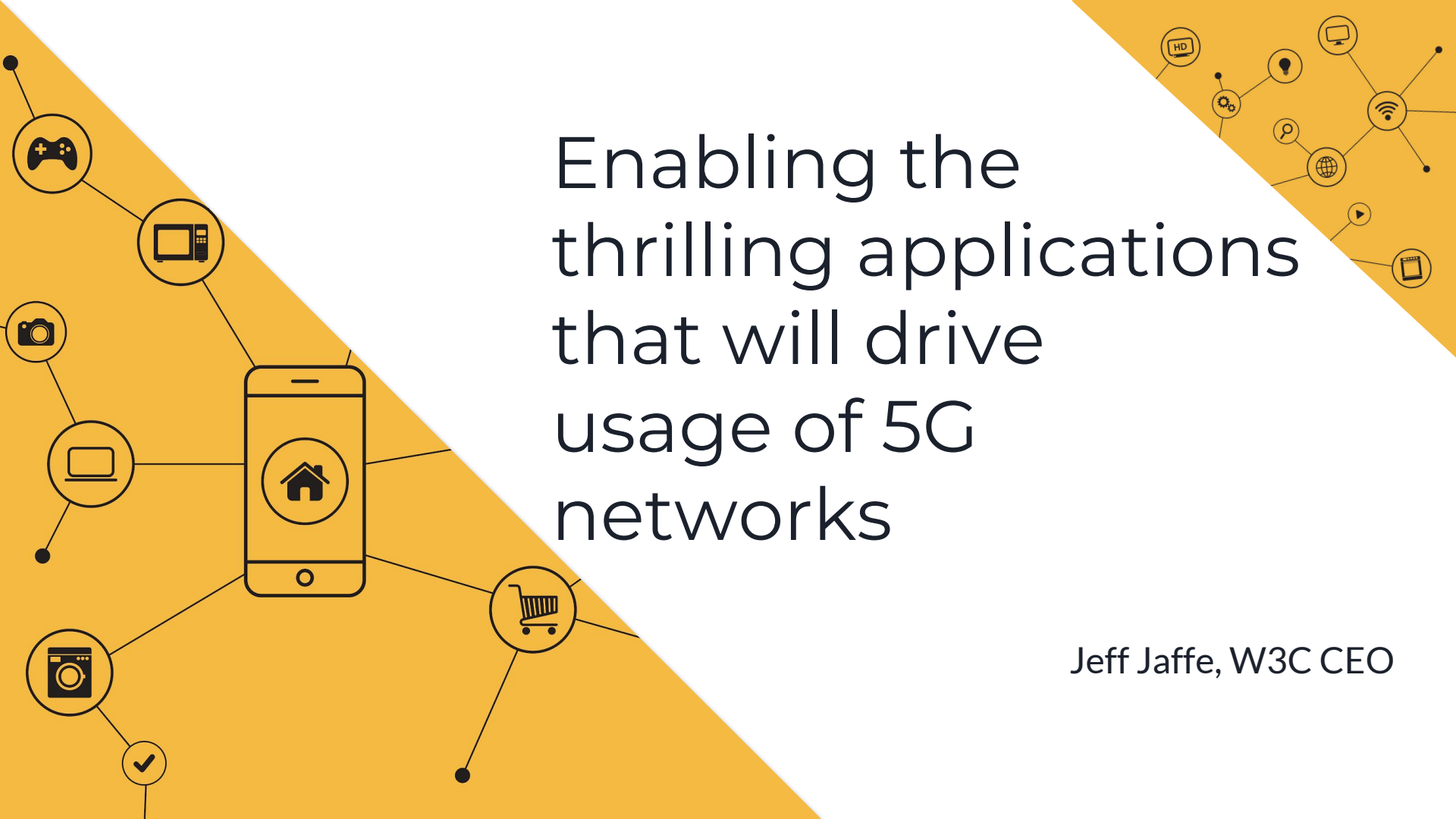


Enabling the thrilling applications that will drive usage of 5G networks

Jeff Jaffe, W3C CEO



What are some 5G applications?



Supercharged
WebRTC



Next gen TV.
HDR, 360



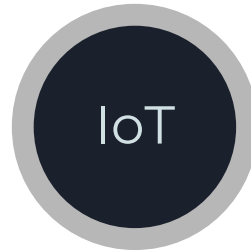
VR, AR



Connected
car



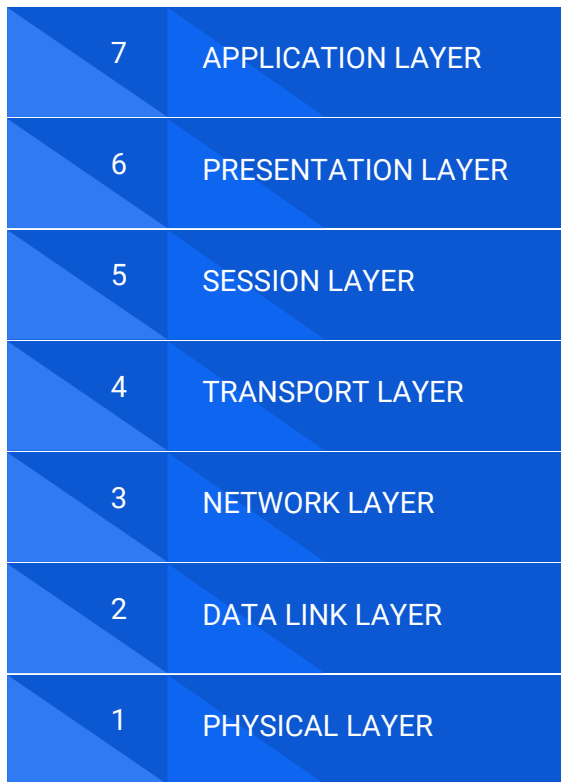
Driverless
car



Internet of
Things



What needs to be done for enablement



- Layering implies that when you have a new capability at the physical layer, no changes are required at upper layers
- This never turns out to be true
- Additional APIs for cross-layer optimizations
- Performance issues
- New applications on the top of the stack create new requirements throughout the stack

← Bandwidth; latency characteristics - this is "5G"

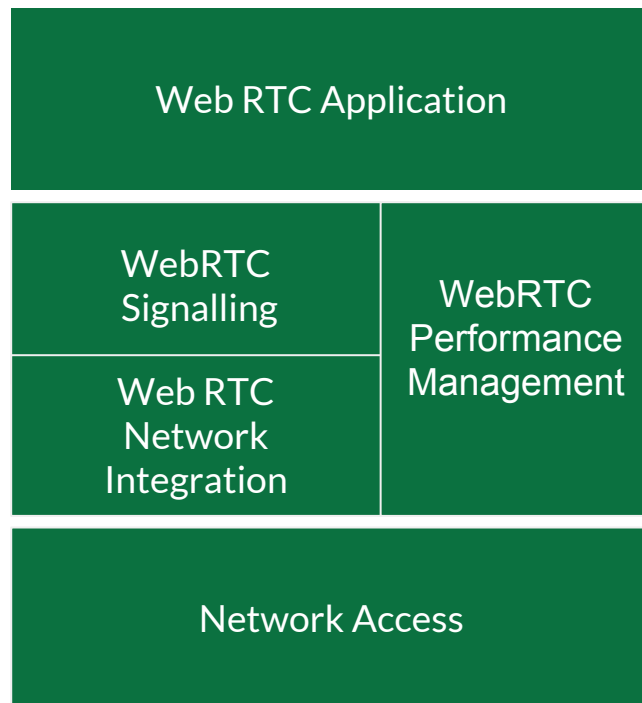
The Internet / Web as the driving higher level infrastructure

Reasons to expect that these applications will choose to run on the web stack :

- Interop
- Multiple platform support
- # of programmers who can program in Web (cite statistics)
- They are all >1 party applications
- Lower maintenance costs
- Availability of open source to reduce development and testing costs
- Largest possible addressable market

Even if application prototypes on 5G don't need the web, 5G won't get scaling and mass rollout without the Web.

WebRTC stack

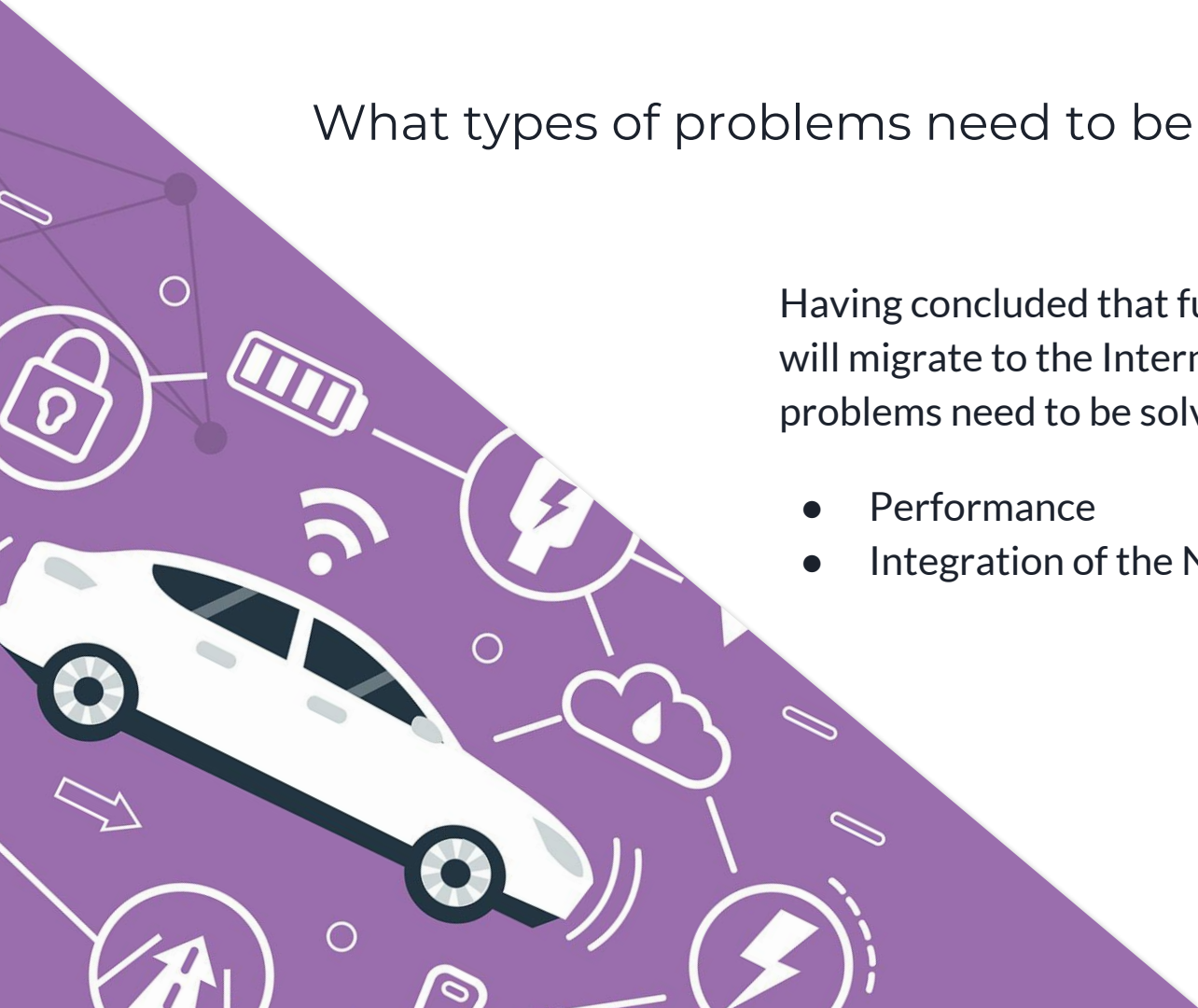


Innovation might start on a proprietary architecture, but it ends up on the Internet/Web stack

01	Telephony	VoIP
02	TV	WebTV
03	Flash	HTML5 video
04	ApplePay	Payment Request API
05	Skype	WebRTC

Reasons that innovation starts proprietary and then moves :

- Proprietary can start faster --> but interop always wins long-term and catches up
- Proprietary may take short cuts (e.g. performance) --> but standard fixes that sooner or later



What types of problems need to be solved?

Having concluded that future mobility solutions will migrate to the Internet of Things, what problems need to be solved?

- Performance
- Integration of the Network

- Performance
- Integration of the Network Protocol Layer

- Performance
- Integration of the Network Protocol Layer

Performance

- Protocols improvements:
 - HTTP2
 - WebRTC
 - QUIC
 - Web Packaging
- Client-side improvements:
 - Service Worker
 - Web Performance APIs
- Challenge:
 - Network management in an all encrypted world

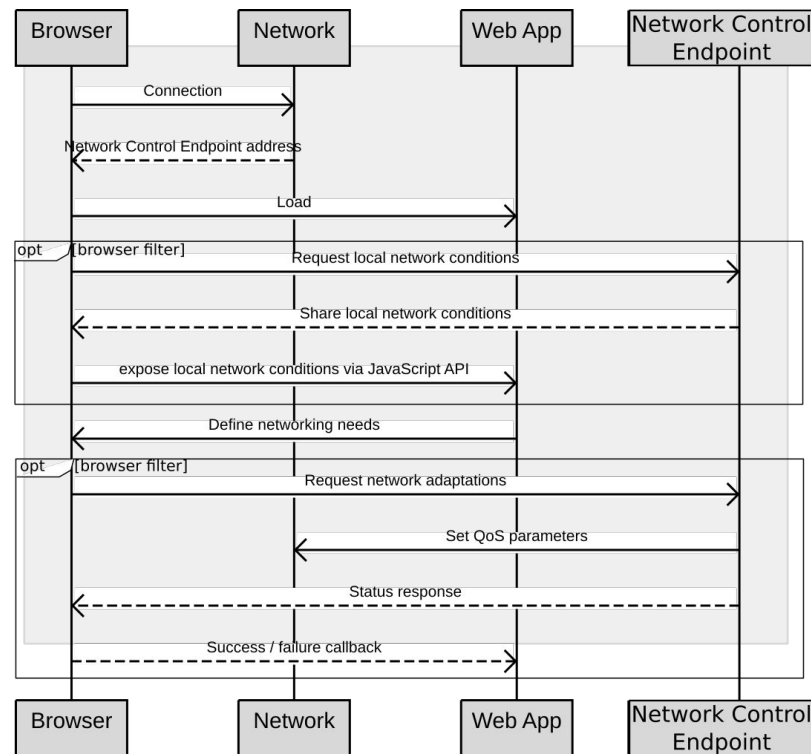
Integration of the Network Protocol Layer

Control of network layer:

- Network slicing on-demand
- Application-managed network performances (via MEC)
- Exploiting network-provided computing resources (MEC)

Discovery :

- How to enable Web apps to adapt to their network context?
- How to enable network to advertise their additional capabilities to long tail application developers?



Pragmatic Steps

Hear all of the workshop input.

There is enough there for at least one; perhaps several CGs.

Need to determine how to have the conversation moving forward about priorities and timeframes (used to be Web and Mobile IG).





Recap

Between application possibilities and what the network can provide there is an enormous opportunity to again re-make the landscape of our connected world.

As engineers we need to focus on end-to-end solution and recognize that we are most likely to be slowed down by the middleware, if we don't get started on it.

