

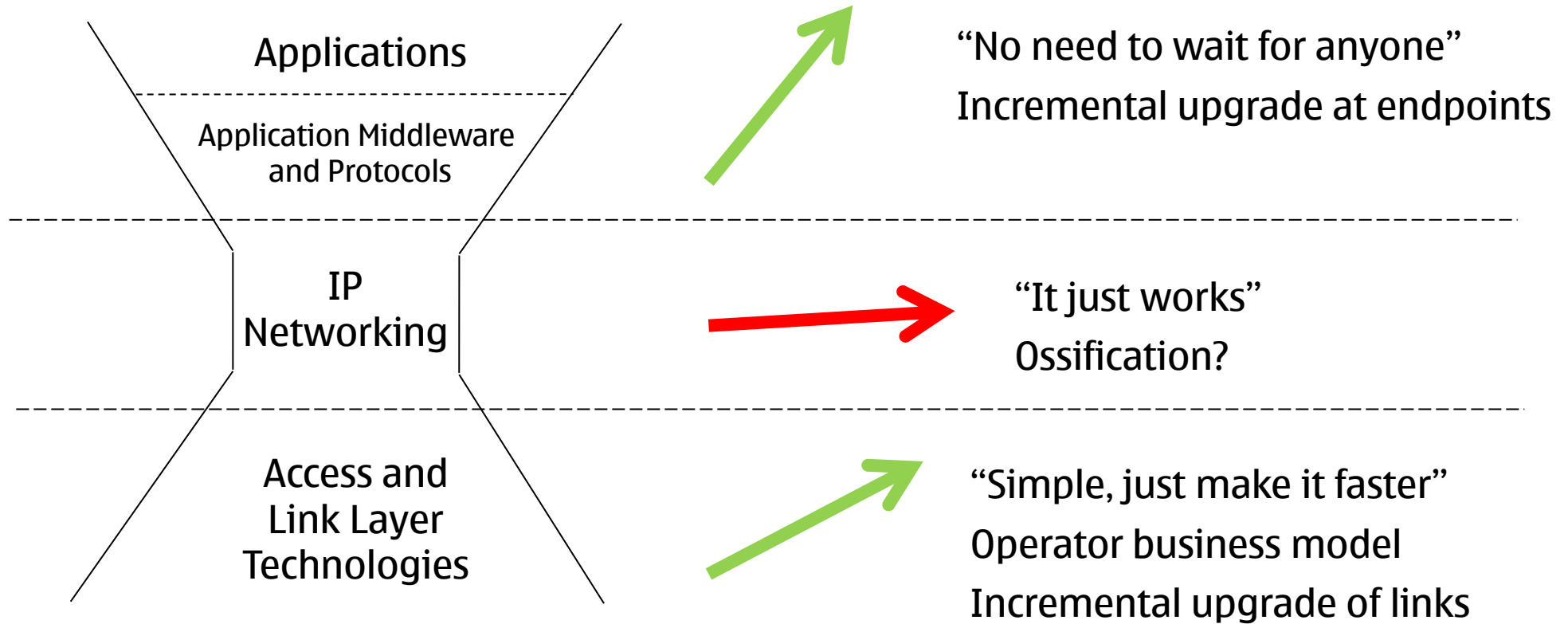
Successful Standards for the Internet

NOKIA

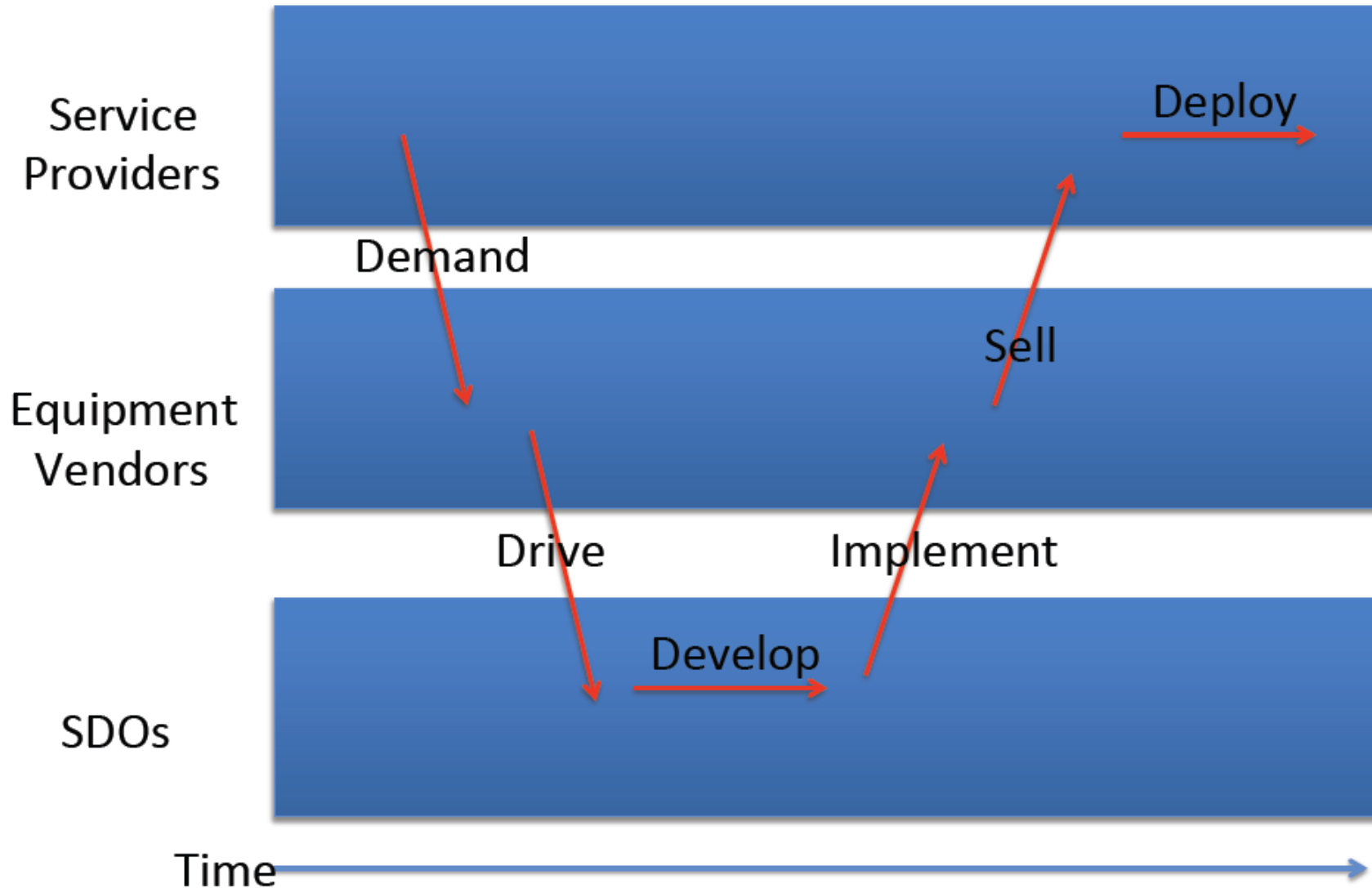
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30.05.2012

Internet Deployment Speed

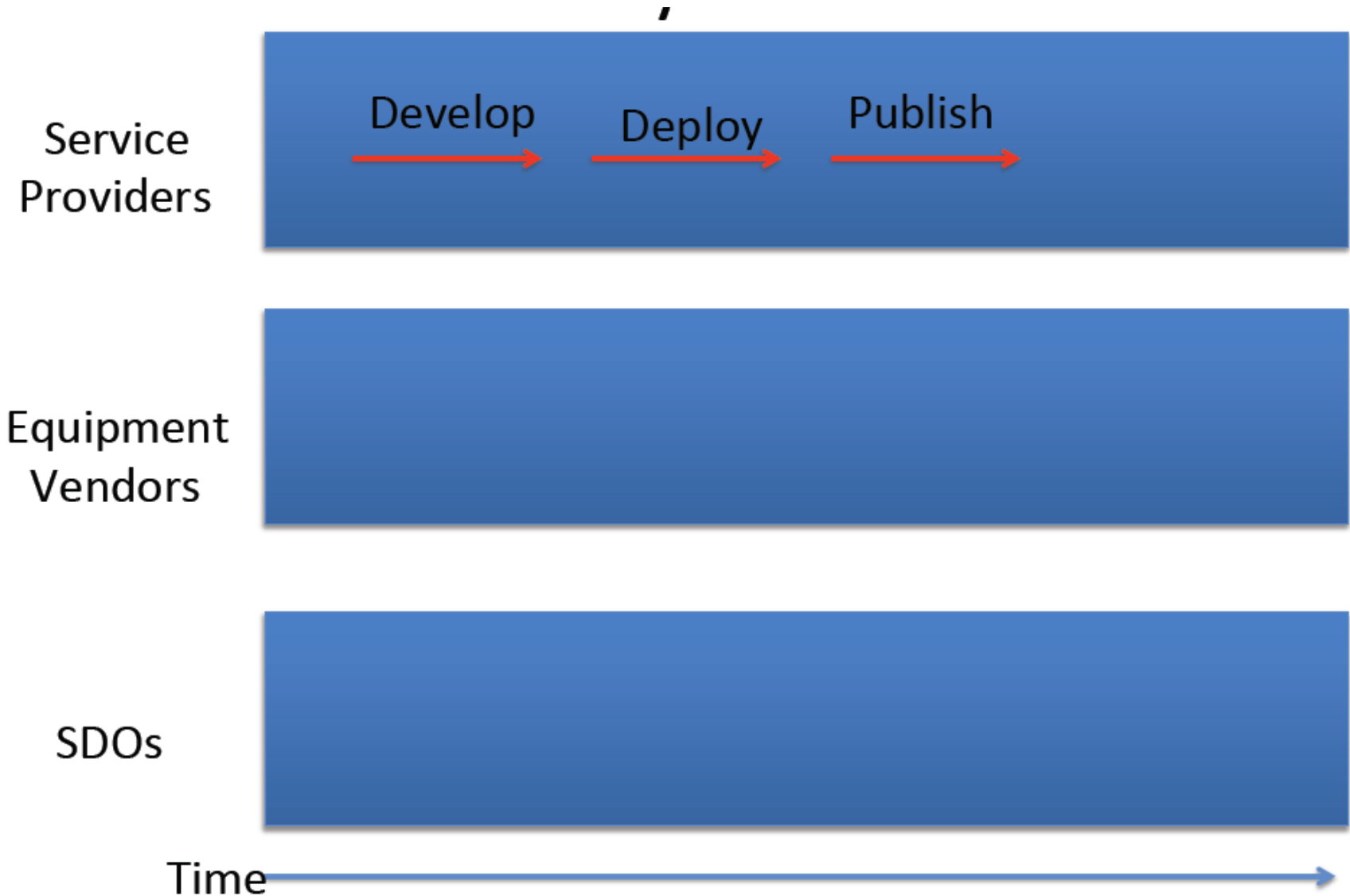


Telecom Innovation Cycle



(Original by Jonathan Rosenberg, Skype, IETF plenary)

Internet Services Innovation Cycle



(Original by Jonathan Rosenberg, Skype, IETF plenary)

Reasons for Deployment Failure

	QoS	Multi-cast	Mobile IP	IPSec (e2e)	IPv6
Not manageable across competing domains	+	+			
Not configurable by normal users (or apps writers)	+			+	
No business model for ISPs	+	+		+	+
No initial gain	+	+			+
80% solution in existing system	+	+	+	+	+
Increase system vulnerability	+	+	+		(NAT)

(Applied from a presentation by Prof. Henning Schulzrinne, Columbia University)

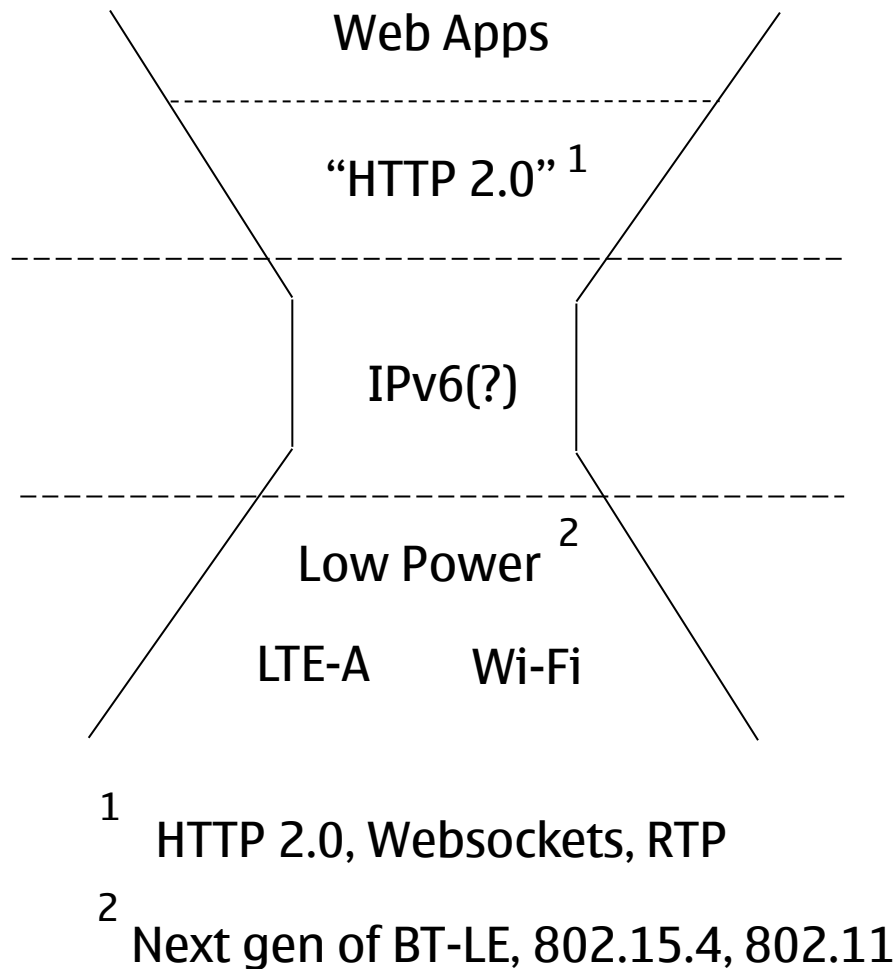
Classic Case Studies

- QoS vs. More capacity
 - Do you want to make your network ten times faster or ten times more complex?
- Mobile IP vs. App layer mobility
- IP multicast vs. App layer overlays
- SIP vs. Skype
 - Telecom vs. Internet innovation cycle
- New application protocols vs. HTTP

Recipe for Success

- Alignment of incentives
 - Those who have to invest will get the value
 - E.g. mobile operators investing in LTE vs. Skype
- Incremental deployment
 - Minimize dependencies to other stakeholders
- Openness
 - May be decisive when there are competing alternatives
 - Open specification, open maintenance, freedom from usage restrictions
- Technical excellence
 - Modularity, extensibility

Linear Prediction for Internet in 2020?



- Billions of connected nodes
 - PC, tablet, smartphone
 - Gadgets and sensors
- Exponential traffic growth
 - Video, telepresence, virtual worlds
- Data and services in the cloud
- E2E security and mobility
 - But not on IP layer

Hopefully someone messes this up and we get something new! 😊