

The Future of LISP

"All Things LISP" Meeting
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Agenda

- What was LISP?
- What is LISP?
- What will be the Future of LISP?

LISP in 2007

- Solution to reducing size of core routing tables
 - Done: 100s of LISP routers in pilot network across 30 countries proves this
 - Done: proved that the solution could be purely network based
- Solution to make multihoming easier
 - Done: there are 100s examples of this from enterprise network multihoming to residential multihoming to state wide education networks to LISP mobile node devices

LISP in 2009

- IRTF transition to IETF working group
 - Begin open protocol development process
- LISP pilot network becomes 2 years old
 - Had its greatest expansion

LISP in 2010-2012

- LISP products come to market
- Open source projects have full LISP feature set
- Network spend for LISP hardware and software
 - People are no longer just piloting LISP
 - People are building production services with LISP

LISP in 2013 (today)

- RFC Status indicates a stability level
- We can differentiate with confidence:
 - What is production level protocol design
 - What is work in progress protocol design
 - And what is advanced research protocol design

LISP Production in 2013

- Use-Cases:
 - Multi-protocol Multihoming
 - Low OpEx managing addressing and core routing
 - Rapid VPN Provisioning
 - Data Center Mobility
 - Device Mobility

RFC 6830 (was <i>draft-ietf-lisp</i>)	The Locator/ID Separation Protocol (LISP)	2013-01
RFC 6831 (was <i>draft-ietf-lisp-multicast</i>)	The Locator/ID Separation Protocol (LISP) for Multicast Environments	2013-01
RFC 6832 (was <i>draft-ietf-lisp-interworking</i>)	Interworking between Locator/ID Separation Protocol (LISP) and Non-LISP Sites	2013-01
RFC 6833 (was <i>draft-ietf-lisp-ms</i>)	Locator/ID Separation Protocol (LISP) Map-Server Interface	2013-01
RFC 6834 (was <i>draft-ietf-lisp-map-versioning</i>)	Locator/ID Separation Protocol (LISP) Map-Versioning	2013-01
RFC 6835 (was <i>draft-ietf-lisp-lig</i>)	The Locator/ID Separation Protocol Internet Groper (LIG)	2013-01
RFC 6836 (was <i>draft-ietf-lisp-alt</i>)	Locator/ID Separation Protocol Alternative Logical Topology (LISP+ALT)	2013-01

LISP Work in Progress in \geq 2013

<u>draft-ietf-lisp-ddt-01</u>	LISP Delegated Database Tree
<u>draft-ietf-lisp-deployment-09</u>	LISP Network Element Deployment Considerations
<u>draft-ietf-lisp-eid-block-04</u>	LISP EID Block
<u>draft-ietf-lisp-introduction-01</u>	An Architectural Introduction to the LISP Location-Identity Separation System
<u>draft-ietf-lisp-lcaf-02</u>	LISP Canonical Address Format (LCAF)
<u>draft-ietf-lisp-mib-11</u>	LISP MIB
<u>draft-ietf-lisp-perspective-00</u>	An Architectural Perspective on the LISP Location-Identity Separation System
<u>draft-ietf-lisp-threats-04</u>	LISP Threats Analysis

LISP Research Work in \geq 2013

<u>draft-barkai-lisp-nfv-02</u>	LISP Based FlowMapping for Scaling NFV
<u>draft-brockners-lisp-sr-00</u>	LISP Extensions for Segment Routing
<u>draft-cheng-lisp-nat-traversal-extension-01</u>	Extension to LISP NAT Traversal Proposal
<u>draft-cheng-lisp-shdht-04</u>	LISP Single-Hop DHT Mapping Overlay
<u>draft-coras-lisp-re-03</u>	LISP Replication Engineering
<u>draft-ermagan-lisp-nat-traversal-03</u>	NAT traversal for LISP
<u>draft-farinacci-lisp-mr-signaling-02</u>	LISP Control-Plane Multicast Signaling
<u>draft-farinacci-lisp-te-03</u>	LISP Traffic Engineering Use-Cases
<u>draft-iannone-lisp-eid-block-mgmt-01</u>	LISP EID Block Management Guidelines
<u>draft-saucez-lisp-impact-01</u>	LISP Impact
<u>draft-saucez-lisp-itr-graceful-02</u>	LISP ITR Graceful Restart

The Future of LISP

- New use-cases continue to spring into existence
- Many early startups and VCs see a network change and huge opportunities
- Incumbents see openness of the LISP community and technology

Use-Cases

- Overlays for ubiquitous IPv4 and IPv6 multicast
- NFV in Data Centers
- LISP will make SDN controllers scale
- Tons of policy and security use-cases
- Wearable devices will have EIDs - tethered with RLOC devices
- Tracking things - pets, merchandise, spectators, sensors
- Making hybrid clouds work together
- Everything will be mobile - anything should be able to move anywhere
- and keep sessions up
- The Internet of Everything

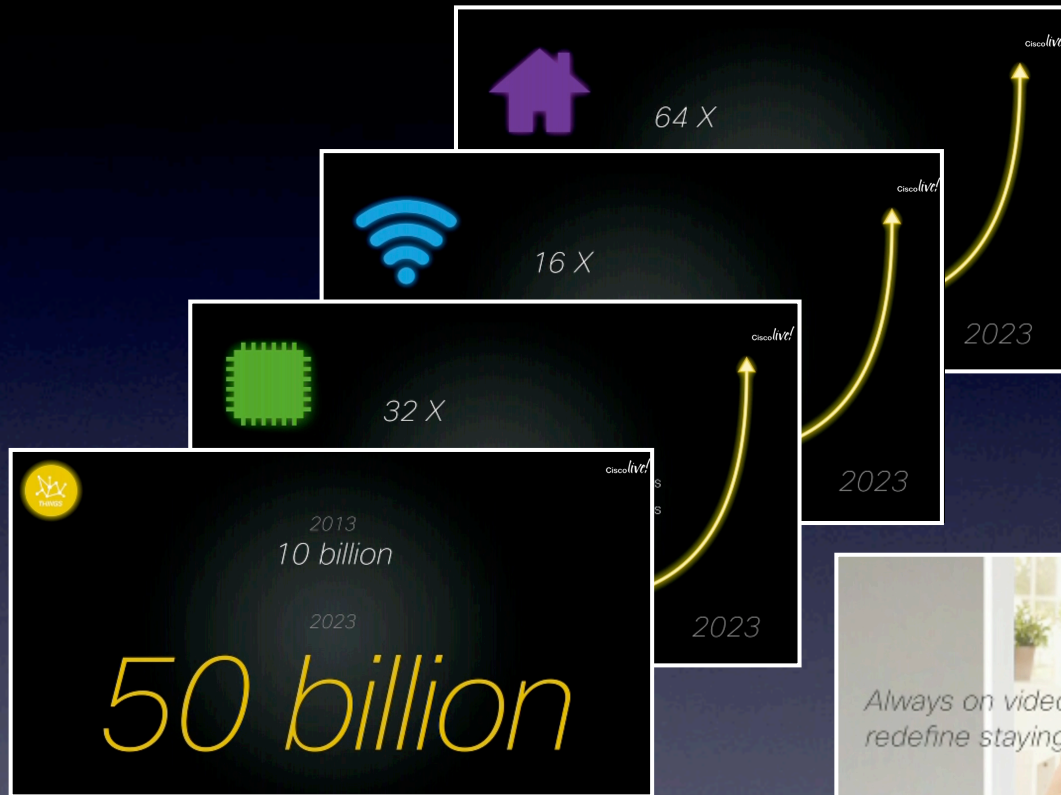
EID Assignment at Birth

52,000,000,000,000,000,000,000,000,000,000,000,000,000,000
addresses per person

CiscoLive!



\$14 Trillion TAM ... really?

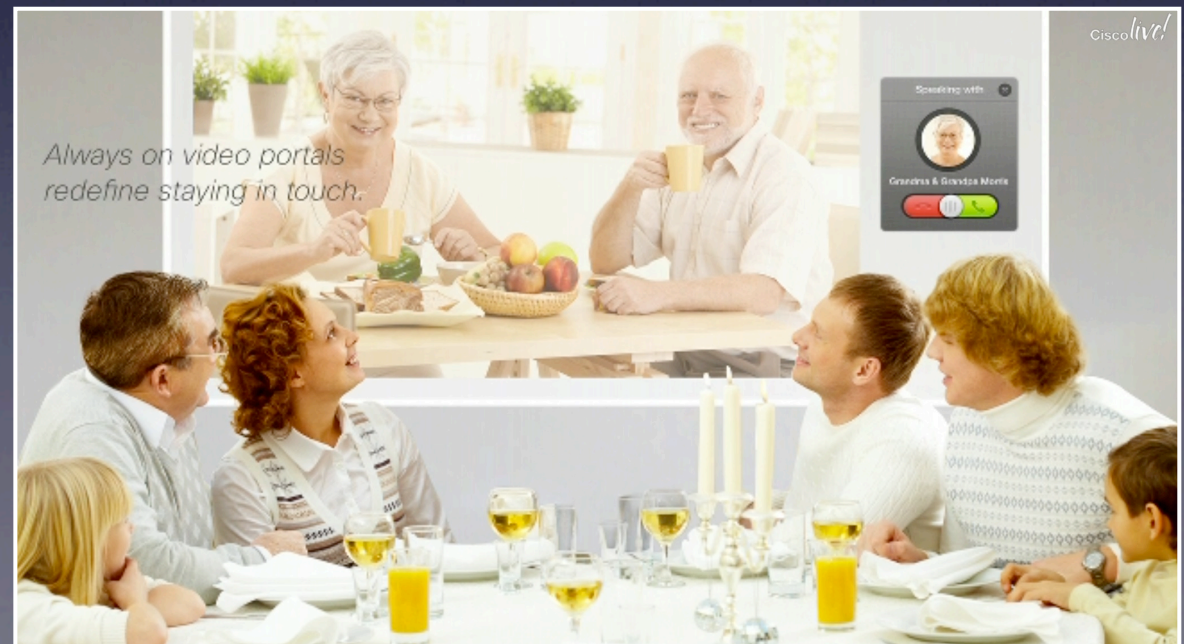
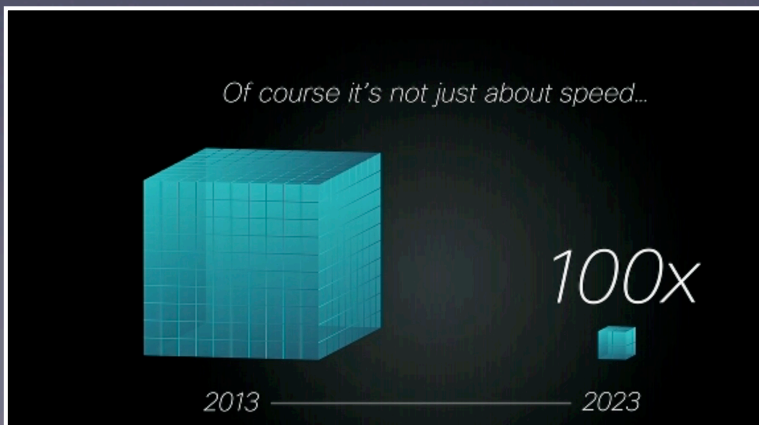


By the end of 2013...

We will create more new information every

10 minutes

than we did in all of human history as of 2008.



What is Needed ASAP!

- We need a ubiquitous production level multi-organizational Mapping Database System
- We need a neutral and public system where user networks can depend on LISP infrastructure just as they do with the DNS system

Martini Glass



Apps go here



LISP goes here



Network Interfaces go here

EIDs

RLOCs