



Should I Really Program My Network?

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Who is Ivan Pepelnjak (@ioshints)

Past

- Kernel programmer, network OS and web developer
- Sysadmin, database admin, network engineer, CCIE
- Trainer, course developer, curriculum architect
- Team lead, CTO, business owner



Present

- Network architect, consultant, blogger, webinar and book author
- Teaching the art of Scalable Web Application Design

Focus

- Large-scale data centers, clouds and network virtualization
- Scalable application design
- Core IP routing/MPLS, IPv6, VPN



What Is SDN?

SDN is the physical separation of the network control plane from the forwarding plane, and where a control plane controls several devices

SDN is the physical abstraction of the network control plane from the forwarding plane, and where a central controller plane controls several devices

Mostly Useless

**SDN is packet forwarding done
in software (on x86 platform)**

SDN is packed with things done
in software (platform)

**Exciting but
Misleading**

**SDN is whitebox switching
(running software on third-party
cheap hardware)**

SDN is whiteb
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cheap l
third-party

**Margin Shifting
Exercise**

SDN is an approach to computer networking that allows network administrators to manage network services through abstraction of lower level functionality

SDN is an approach to computer networking that allows network administrators to manage network settings through abstracted, higher level functions. This makes sense

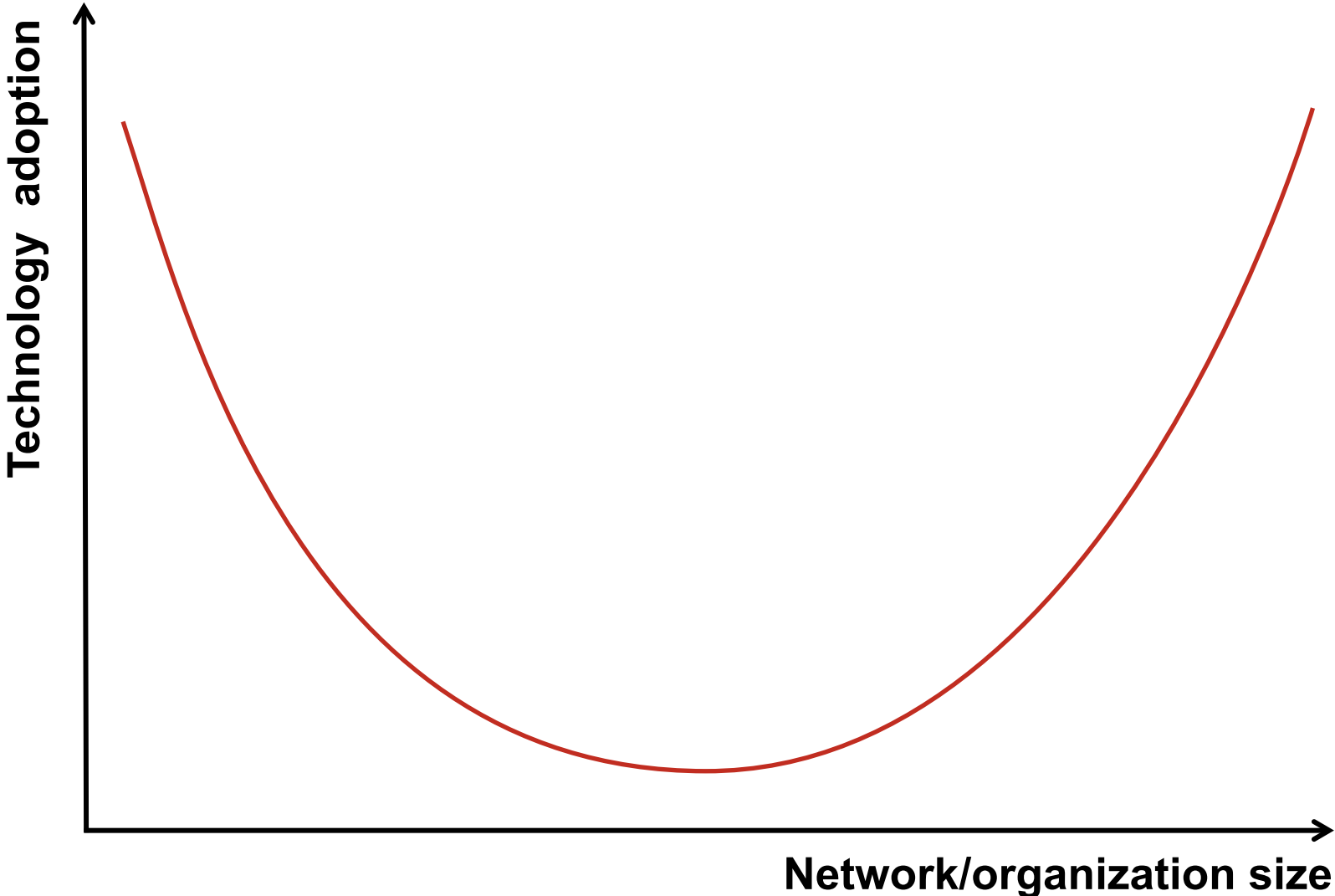
This Makes Sense

SDN Is a Lifestyle

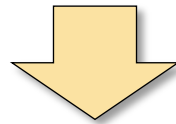
From Here to There

Networks are Mission-Critical Infrastructure

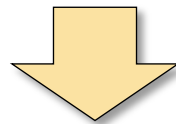
Expect the U-Curve Adoption



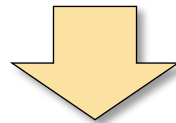
Simplify



Standardize

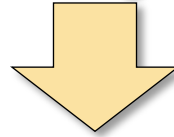


Automate

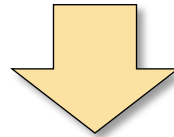


Abstract

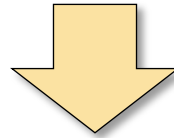
Read-Only Access



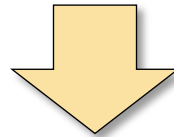
Device Provisioning



Service Provisioning



Traffic Rerouting



Real-Time and Data Plane

**Don't Try to Fly Until
You Learn How to Walk**

Parting Thoughts

Go for Low-Hanging Fruits

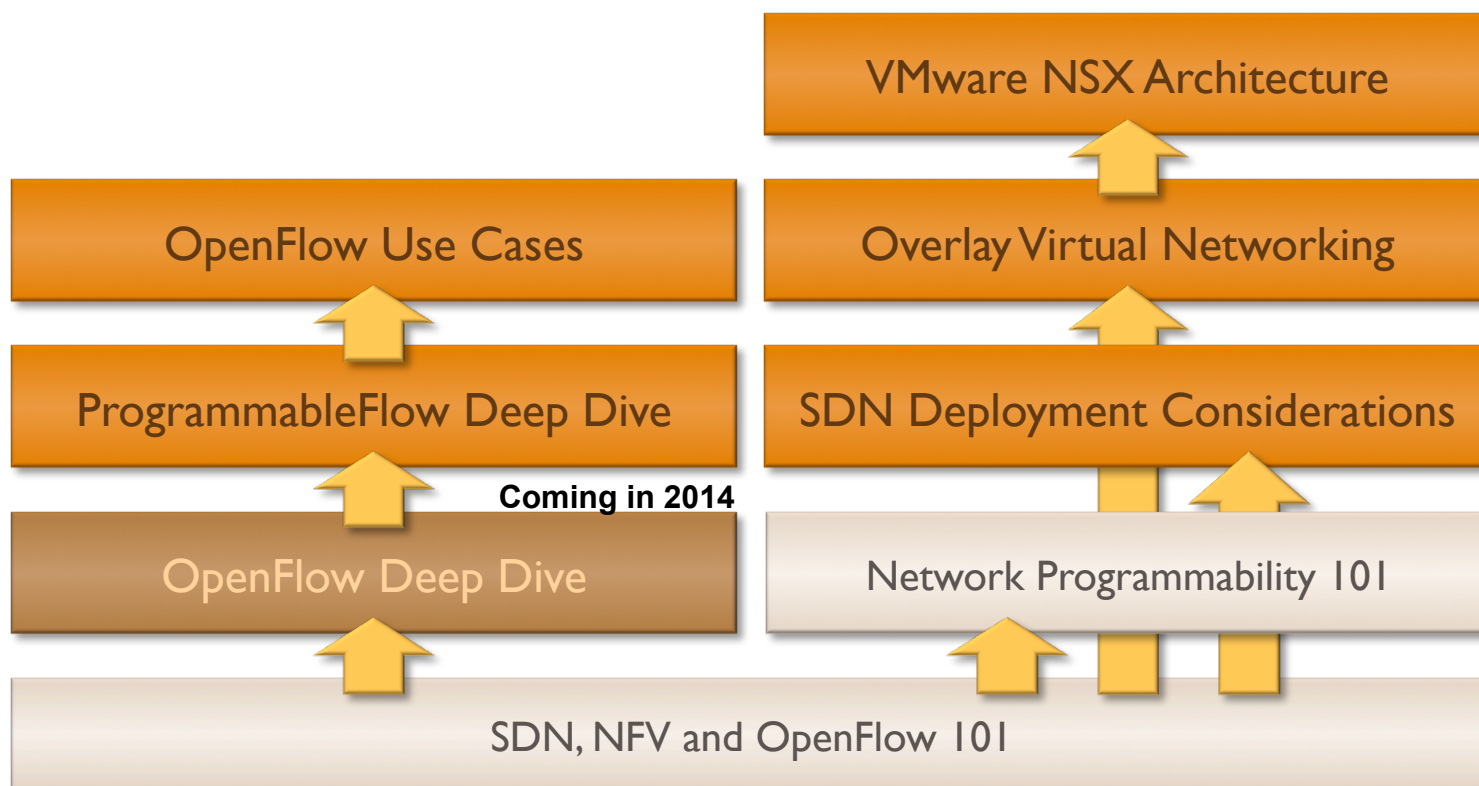
**Make it Strategic,
not a Hobby**

**Not All Network
Engineers Are Great
Programmers**

Don't Ignore 40 Years of Operational Experience

Share!

SDN, OpenFlow and NFV Resources on ipSpace.net



Trainings

- Live sessions
- On-Site workshops
- Recordings

Other resources

- Consulting
- Books and case studies
- Subscriptions

SDN, OPENFLOW AND NFV RESOURCES ON IPSPACE.NET

Software-defined networking (SDN) can mean anything, from programmable network elements to architectures in which control- and forwarding planes reside on different devices.

The resources listed on this page will help you understand SDN, its implications and its applicability in your environment.



NETWORK DESIGN

- ⌘ [Consulting services](#)
- ⌘ [ExpertExpress](#)

WORKSHOPS

- ⌘ [SDN, OpenFlow, NFV and SDDC](#)

BOOKS

- ⌘ [SDN and OpenFlow](#)

WEBINARS [ROADMAP]

- ⌘ [Network Programmability 101](#)
- ⌘ [OpenFlow and Software Defined Networking](#)
- ⌘ [ProgrammableFlow Technical Deep Dive](#)
- ⌘ [Real Life OpenFlow Use Cases](#)
- ⌘ [SDN, NFV and OpenFlow for Skeptics](#)
- ⌘ [SDN Deployment Considerations](#)
- ⌘ [VMware NSX Architecture](#)

PRESENTATIONS

- ⌘ [Overlay Virtual Networking Explained, PLNOG 11 \(video\)](#)
- ⌘ [Virtual Routers, SINOG meeting, June 2014](#)
- ⌘ [SDN and Security, Troopers 14, March 2014 \(slides, video\)](#)

SOFTWARE GONE WILD [MORE...]

- ⌘ [Show 8: Open-Source Hybrid Cloud Reference Architecture](#)
- ⌘ [Show 7: Snabb Switch Deep Dive](#)
- ⌘ [Show 6: Toolsmith @ Netflix](#)
- ⌘ [Show 5: Pmacct: the Traffic Analysis Tool with Unpronounceable Name](#)
- ⌘ [Show 4: Network Automation @ Spotify](#)
- ⌘ [Show 3: The F-Script with John Herbert](#)

OTHER PODCASTS

- ⌘ [SDN: Heretic of Security \(Healthy Paranoia show 20\)](#)
- ⌘ [OpenDaylight and SDN \(show 145\)](#)
- ⌘ [Why OpenFlow has mind-melting potential \(show 76\)](#)
- ⌘ [OpenFlow, SDN, controllers, VXLAN and wishing for fishes \(show 71\)](#)
- ⌘ [OpenFlow - upending the networking industry \(show 40\)](#)
- ⌘ [How Networking Is Changing, theCube interview @ EMC World 2013](#)
- ⌘ [New networks for the cloud on The Cloudcast](#)

BLOG POSTS [MORE]

- ⌘ [The Four Paths to SDN](#)
- ⌘ [Controller Cluster Is a Single Failure Domain](#)
- ⌘ [Scalability Enhancements in Cisco Nexus 1000V](#)
- ⌘ [Snabb Switch Deep Dive on Software Gone Wild](#)

A young child stands on a floor map of Europe. The map is drawn on a grey tiled floor and shows major cities like London, Brussel, and Paris. Three black network switches are placed on the map, with numerous colorful cables (red, blue, yellow, green) connected to them. The child is wearing a white t-shirt with red sleeves and dark pants. The scene is set in a room with a grey tiled floor and a brown wall in the background.

Questions?

Send them to ip@ipSpace.net or [@ioshints](https://twitter.com/ioshints)