TFDx - Big Switch Networks

Dell EMC to OEM Big Switch's first cloud networking portfolio [announcement]

Paul Unbehagen (@punbehagen)

Cloud isn't a location, it's a design principle

Networking needs to evolve
- complex and slow operations
- inadequate visibility
- lack of operational consistency

On-premises needs to built the same way as the service providers

Amazon made the network completely invisible. VPC becomes a mini data centre. Works well when you run it under VMware or NTNX.

Software defined
Automated with APIs
Open Hardware
Integrated Analytics

APIs are not an afterthought for Big Switch.

Agnostic to the hypervisor

A Better DC Network
Cloud-first infrastructure - design, build and operate your on-premises network with the same techniques used internally by public cloud operators
Cloud-first experience - give your application teams the same "as-a-service" network experience on-premises that they get in cloud
Cloud-first consistency - uses the same tool chain to manage both on-premises and in cloud networks

*Don Schroer, BNSF Railway
150 year old company. Used to have people all over the company doing lots o manual work. Now it's all remote controlled from Fort Worth, TX. Mainly doing freight. Busy time is from Thanksgiving to Xmas.

When you run from one location the network becomes a critical piece of the environment. Need data to do this. Providing wireless connectivity to 32000 miles of track. Have to be able to talk with those train crews as well.

Multi-faceted DCs
- ESXi
- VxRail
- Bare Metal
- Nutanix
- OpenShift

- Multiple Server Management Domains
- Mostly Homegrown applications
- Mainframes still a large source of data

DC Network Goals
- open network hardware
- easier to operate
- multi-tenancy
- simplification of network segmentation
- API accessible environment
- ease of network upgrades
- automation

Who manages this? The network team? The server team? It's a combination.

Different PODs in different DCs. Approx 4000 Endpoints in Forth Worth DC, 3000 Endpoints in Topeka DC.
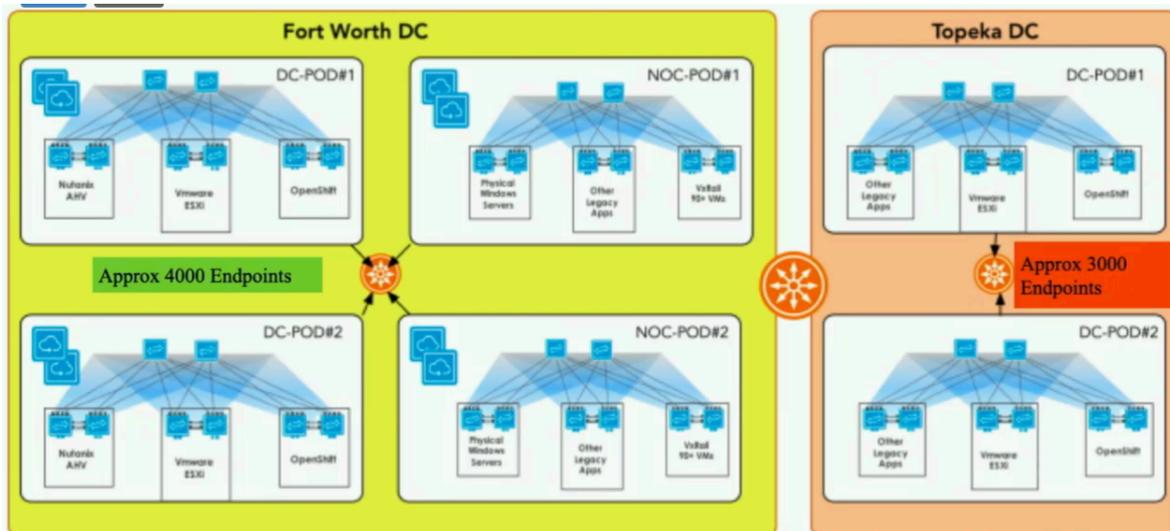
Next steps - sensors / analytics everywhere
Trying to catch problems ahead of times

Most of our network is very remote - mountaintops, valleys. We do stuff where most carriers don't want to go. We have 17000 miles of microwave path.

Next steps - edge compute
Working on fully automating things like cranes lifting stuff off trains

First non line of sight drone. It's now in the Smithsonian.

A 15 minute outage can take a week for schedules to recover

Sachin Vador - tech demo