

# The Anatomy of an SD-WAN Solution & Its Open Source Building Blocks



# The Evolution of Open Source

Gen 1



Developed by an unaffiliated community. No real business model

2



Developed by a company. Hybrid of free & commercial license.

3



Developed by a company. Built for the cloud, offered as SaaS

# The Evolution of Open Source

Gen 1

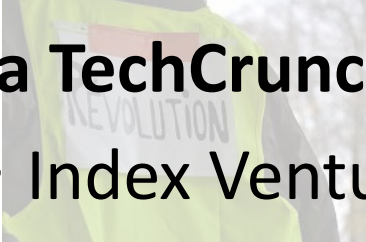
2

3


Based on “[How open-source software took over the world](#)”

a TechCrunch article by Mike Volpi


- Index Ventures partner
- Previously Chief Strategy Officer of Cisco



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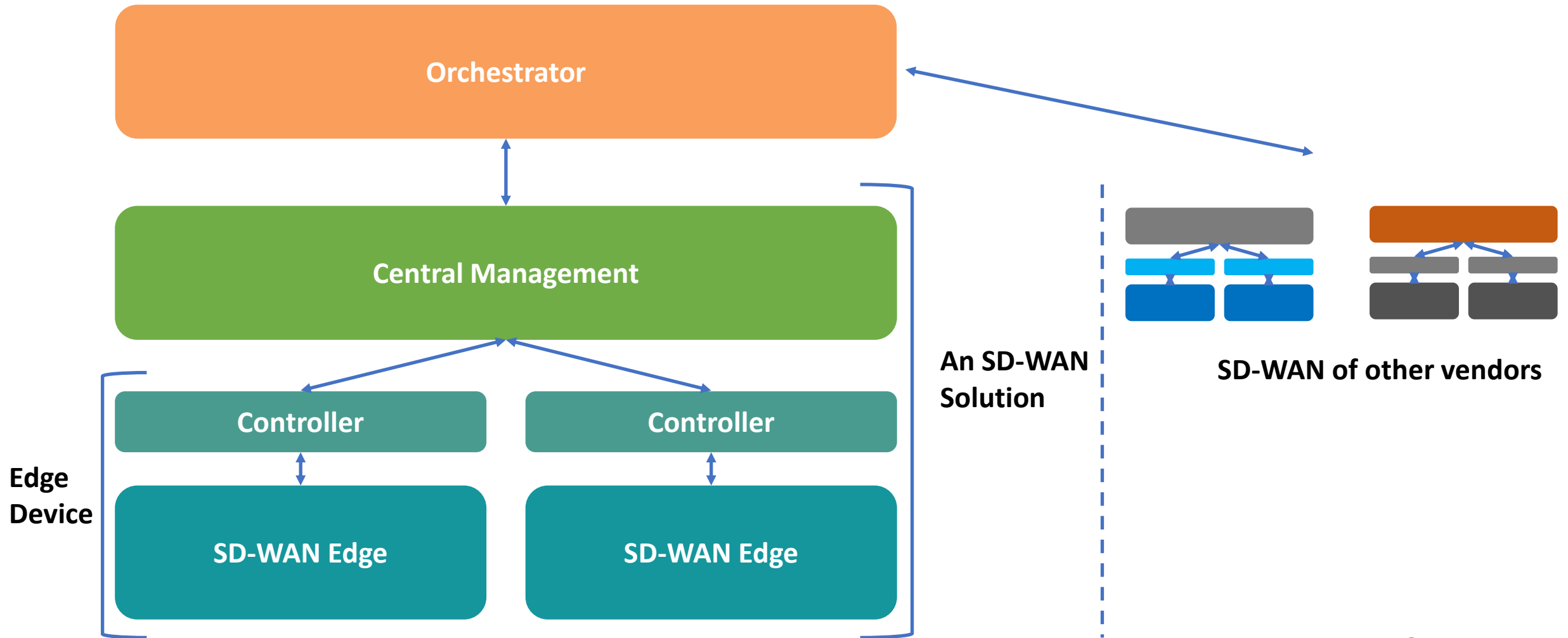


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# The Anatomy of an SD-WAN Solution



# Open Source Building Blocks of an SD-WAN Solution

# Adding Open Source to the Mix – Edge Device

Controller



REST APIs to Central Management

Technologies & Applications

Tunnels Creation & Management

Encryption  
IPSec

WAN  
Optimization

FW

nDPI

Packet Processing & Routing



OS & Virtualization



# Adding Open Source to the Mix – Management & Orchestration

Orchestration



Orchestration  
APIs

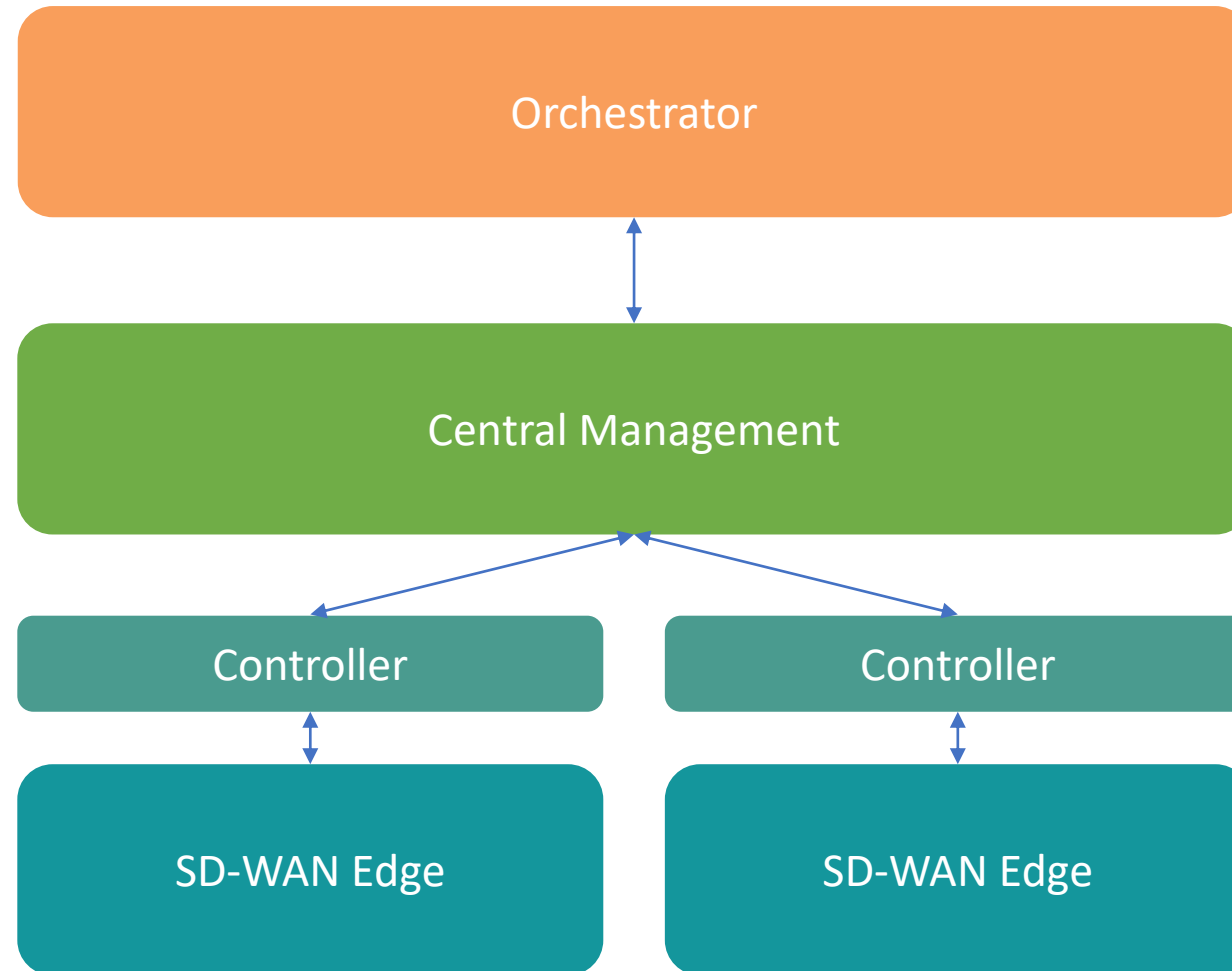
Management  
Logic

Network Architecture   Policy   Monitoring   Provisioning   Version Management

Management  
Infrastructure

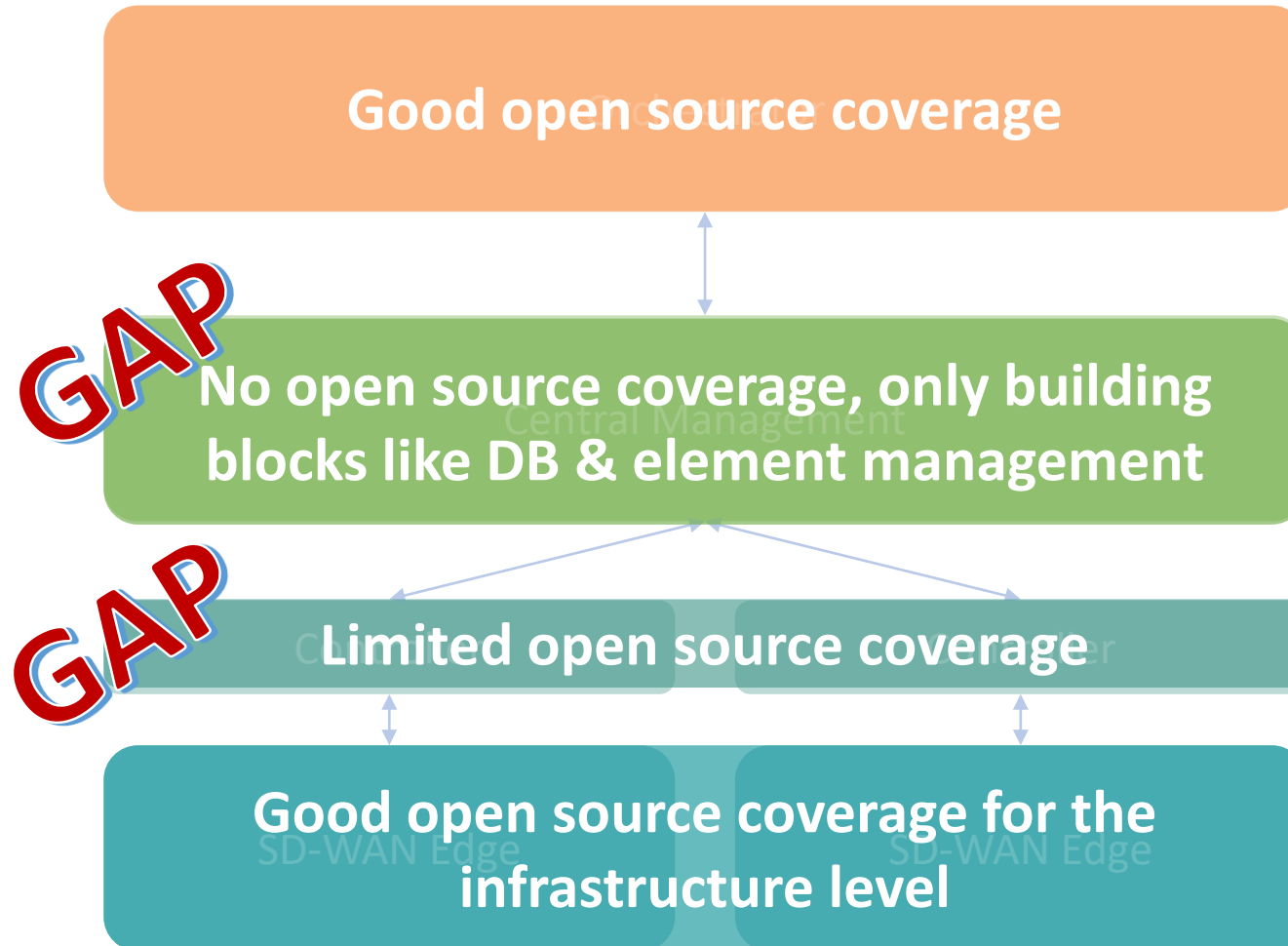


# The Anatomy of an SD-WAN Solution

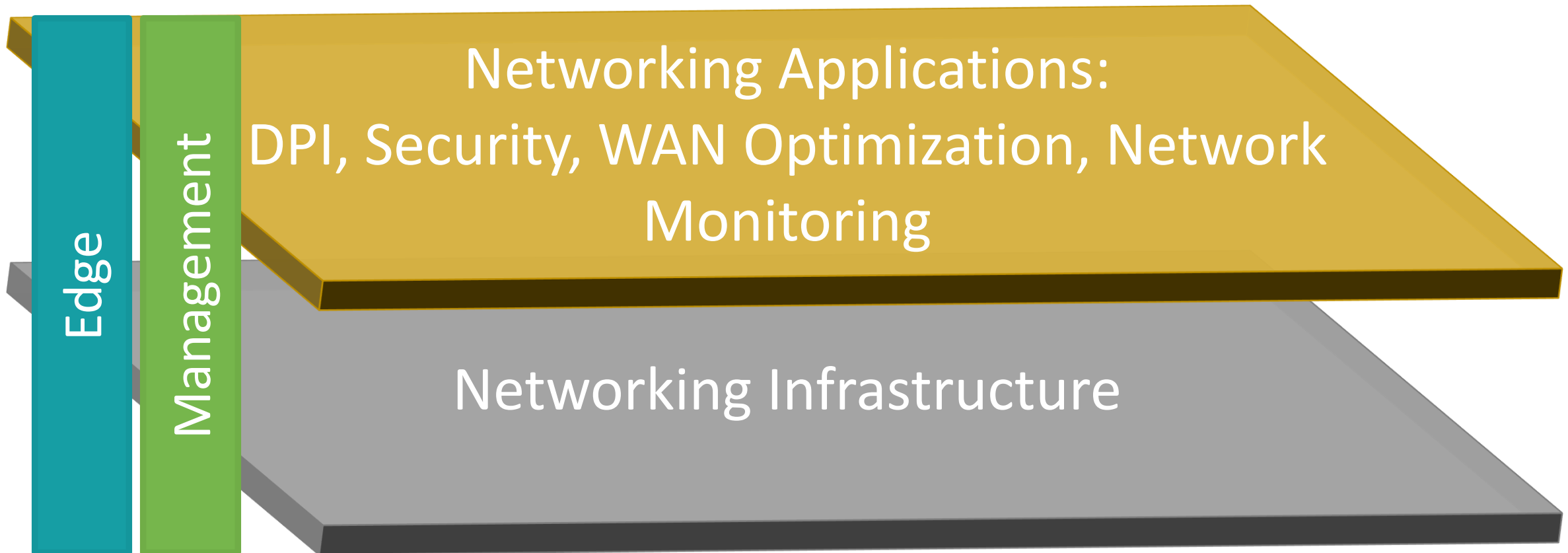




# The Anatomy of an SD-WAN Solution



# Horizontal SD-WAN Layers Across Edge & Management

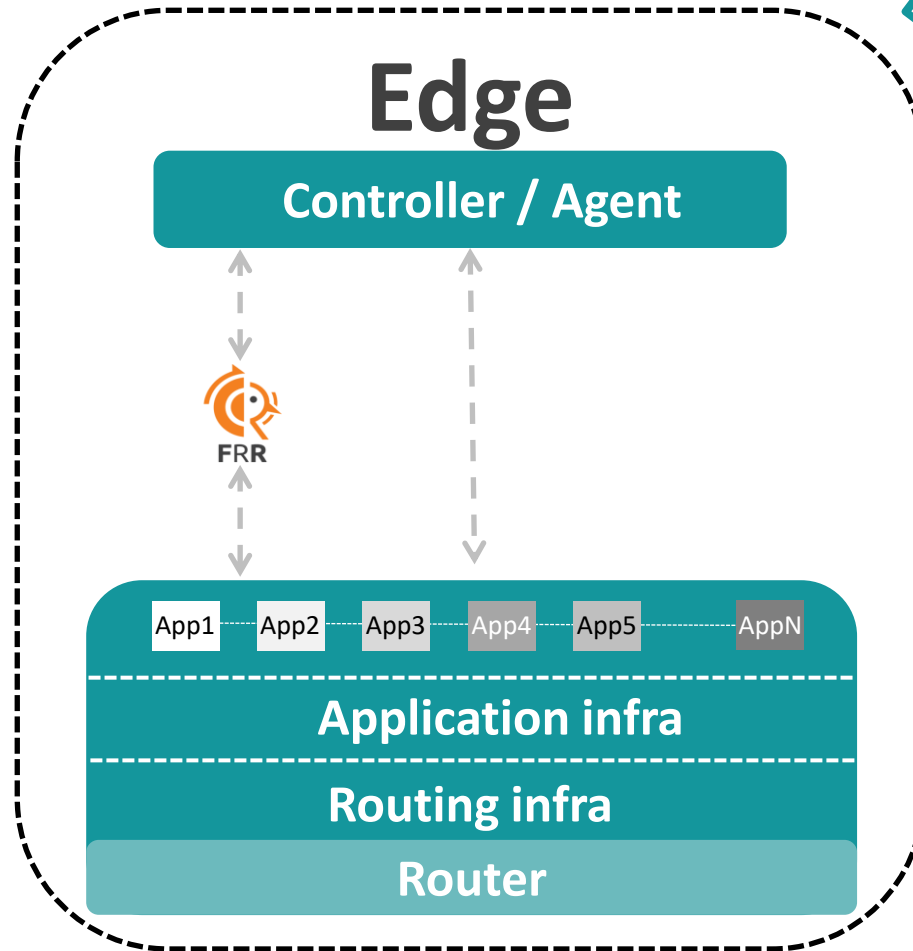


# Horizontal Separation of SD-WAN Allows for Modularity



## This is the Second Wave of SD-WAN

# Modular Open Architecture



*Different from VNF Service Chaining*

# Applying Modular & Open Source Concepts to SD-WAN - **Benefits**

- **50-90% Cheaper** –
  - **Modular software stack** – use what you need versus the entire bloated software stack that in many cases requires 4 cores and 8G minimum
  - **Success based licensing** – Freemium based model with the base opensource for free and a nominal fee for additional features that add value
  - **Community** – Open source community for development and support
- **Removing** vendor lock-in – Open architecture & open source
- **Future proof** – Integration of future technologies (e.g. AI, handling encrypted traffic, move towards zero trust networking)
- **Differentiation** - Service providers can offer differentiated services and have better control over their SD-WAN service

# Conclusions

- SD-WAN solutions are based on a large number of open source elements
- Gaps exist in the SD-WAN applications & management layers
- It is complex to bring all the open source elements into a complete solution
- Adding application modularity allows for: Controlling cost, differentiation, Future proof and limiting vendor lock
- flexiWAN is pioneering the concept of open source & modular SD-WAN

# Thank You

**Contact information:**

Amir Zmora

[amirz@flexiwan.com](mailto:amirz@flexiwan.com)

<https://flexiwan.com>