

# "Solving" OpenFlow Scalability [Not (very much) about Resilience]

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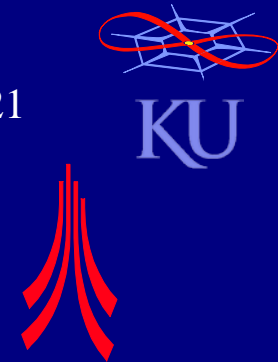
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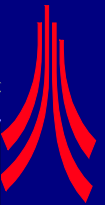
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# Where is Kansas?

## Geography Lesson

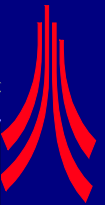




# SDN

## Back to the Future

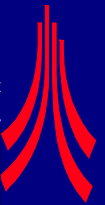
- We've done this before:
  - active nets
- OpenFlow is a piece of what we need



# OpenFlow

## A First Baby-Step toward Programmable Nets

- We've done this before:
  - active nets
- OpenFlow is a piece of what we need
  - we've been trying to get an interface for years
  - but no data plane
  - and no real control plane



# OpenFlow

## Data Plane and Scalability?

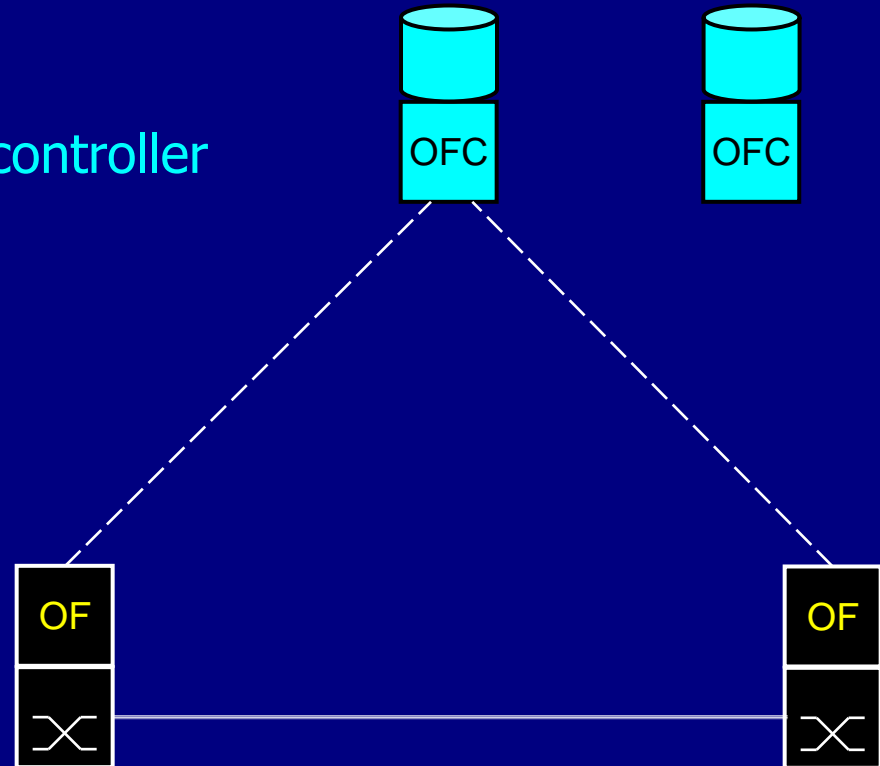
- We've done this before:
  - active nets
- OpenFlow is a piece of what we need
  - we've been trying to get an interface for years
  - but no data plane
  - and no real control plane
- And we've made the same mistakes
  - data plane? we already did that in *active nets*
  - scalable?



# OpenFlow Architecture

## Scalability Problem

- OpenFlow scalable?
  - centralised OpenFlow controller

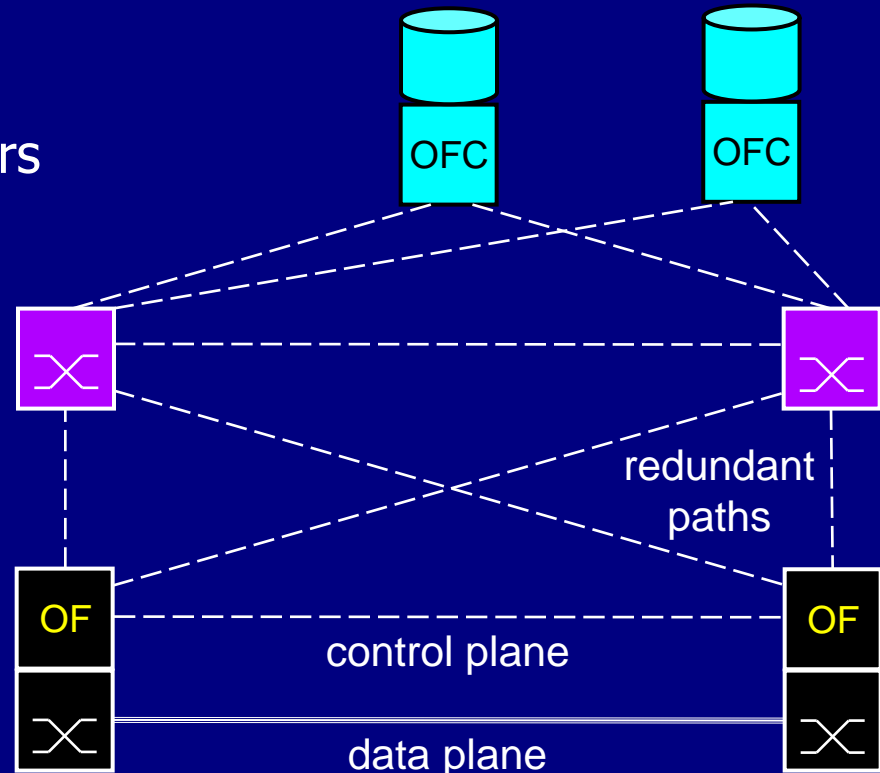


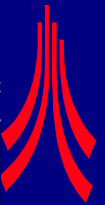


# Scalable OpenFlow Architecture

## Scalability Problem

- OF scalable?
  - distributing OF controllers

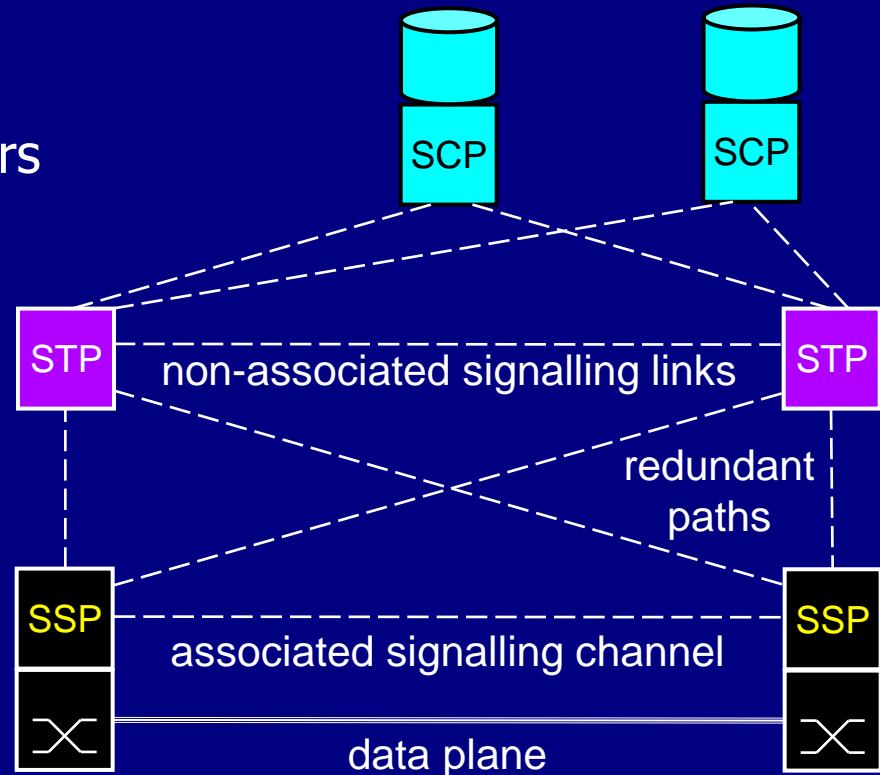




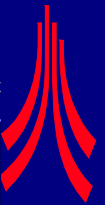
# Scalable OpenFlow Architecture

## Renaming Components

- OF scalable?
  - distributing OF controllers
  - and slightly renaming components



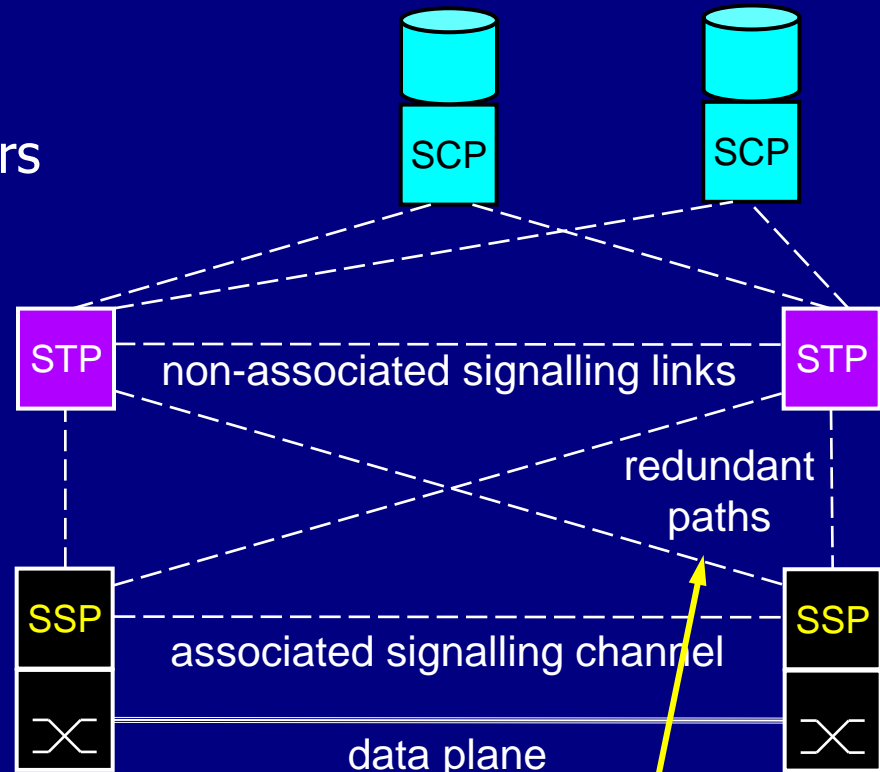




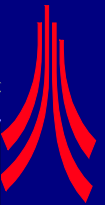
# Scalable OpenFlow Architecture

## Renaming Components

- OF scalable?
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  - and slightly renaming components
- **SS7 / CCS7**



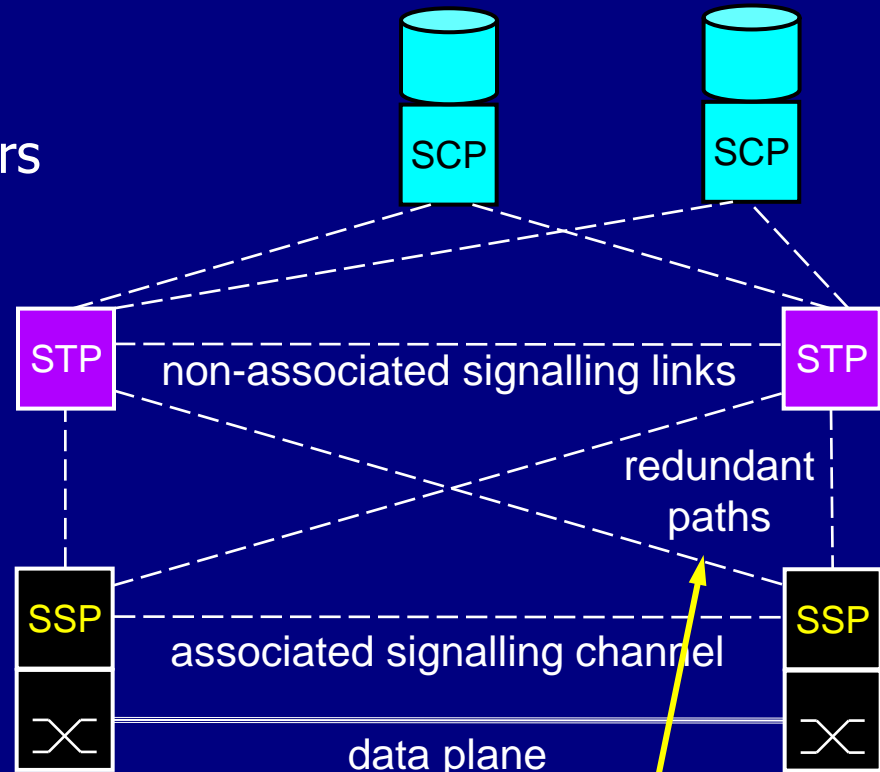
*OK, there is the resilience*



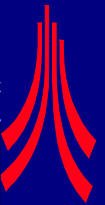
# Scalable OpenFlow Architecture

## IN (Programmable) Basic Call Model

- OF scalable?
  - distributing OF controllers
  - and slightly renaming components
- **SS7 / CCS7**
  - IN BCM gives programmable protocol state machines
  - adapt rather than reinvent



*OK, there is the resilience*



End