

# Multilevel MDA-Lite Paris Traceroute

October 17<sup>th</sup>, 2018

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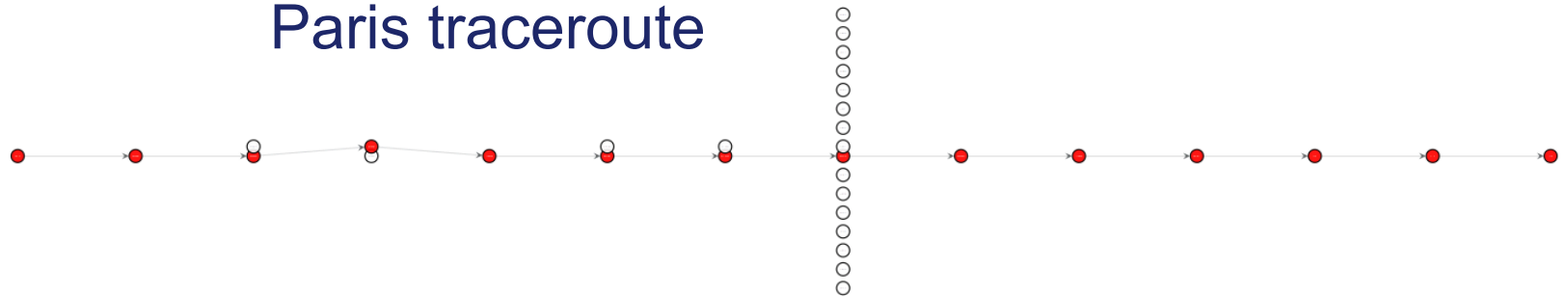
Olivier Fourmaux, Sorbonne Université

Timur Friedman, Sorbonne Université



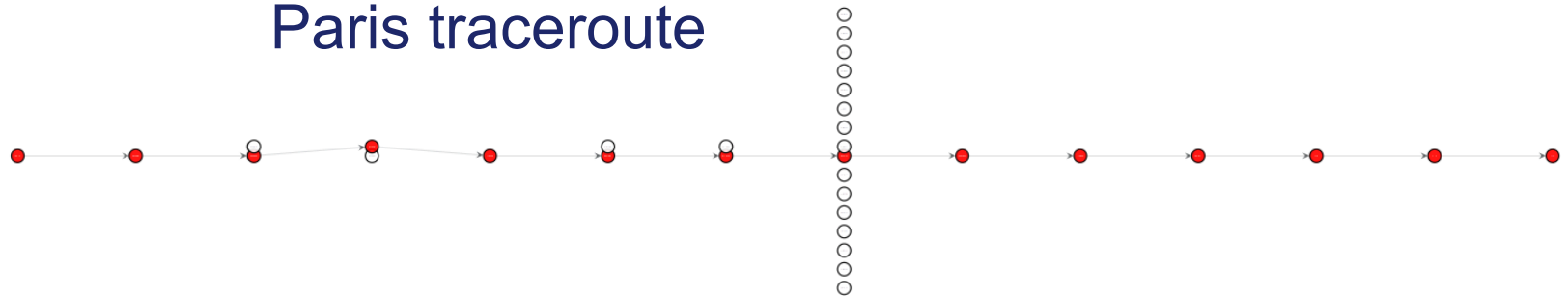
# Introduction

Paris traceroute

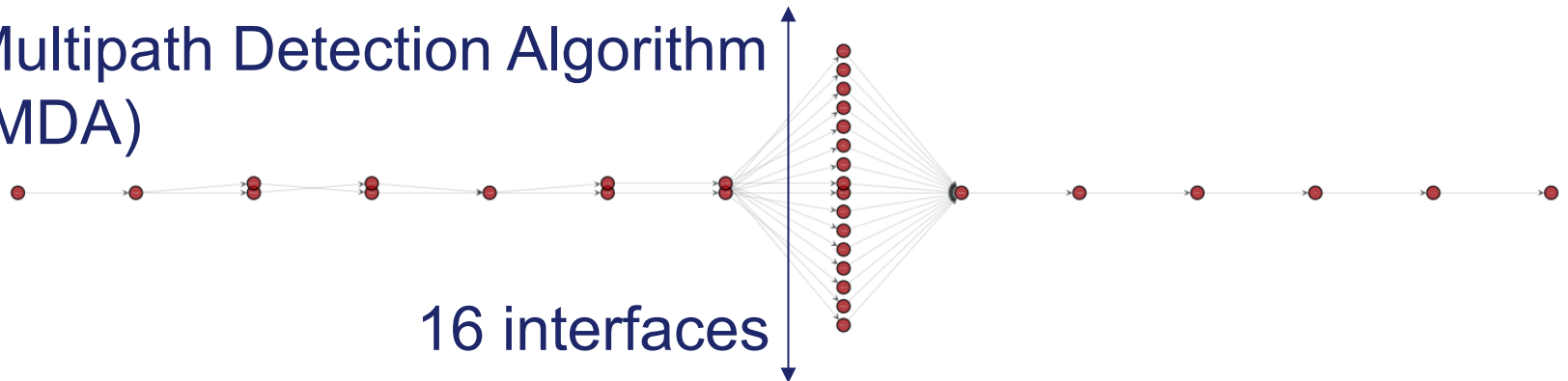


# Introduction

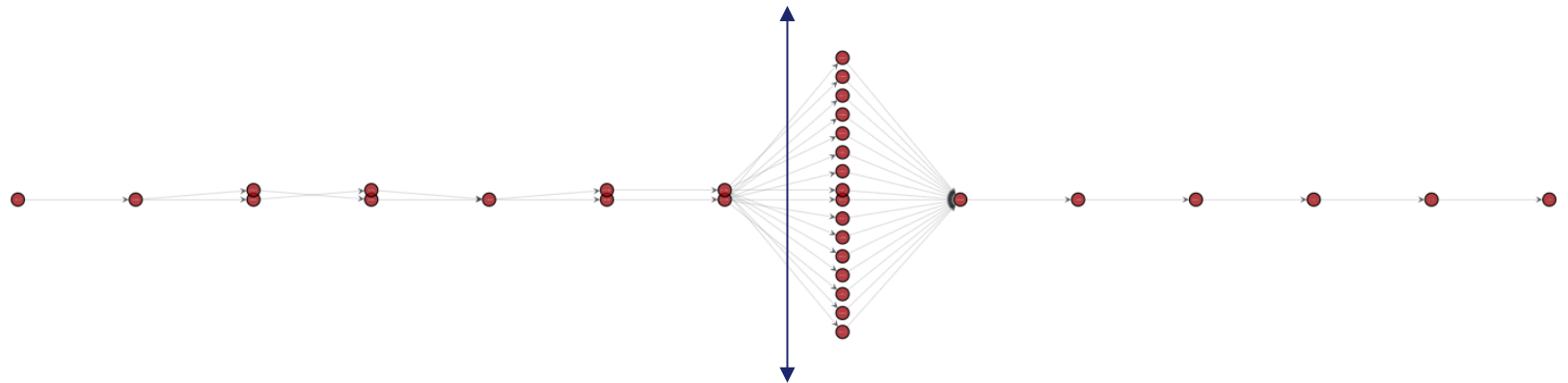
Paris traceroute



Multipath Detection Algorithm (MDA)



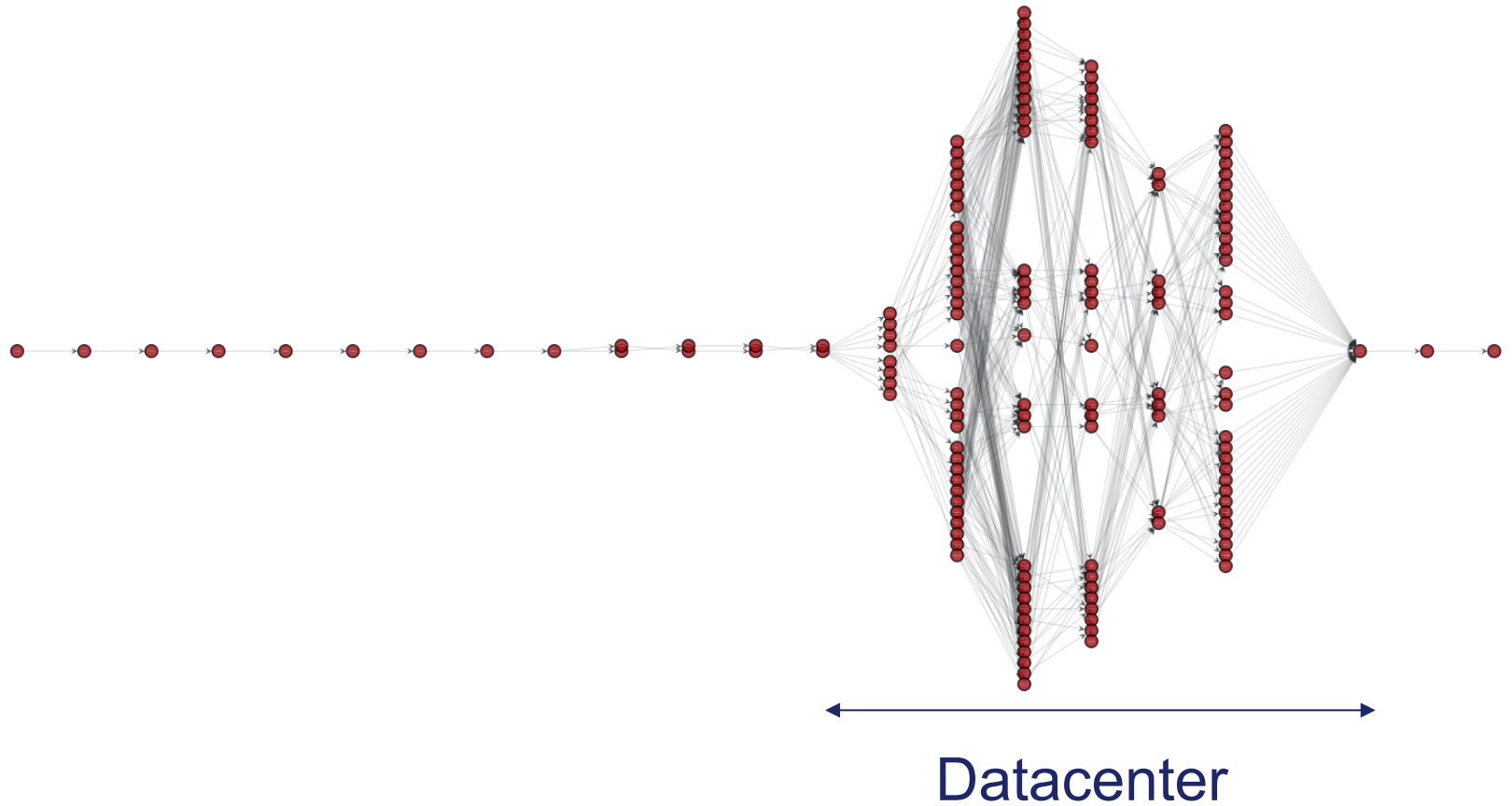
# Pre-2018 report



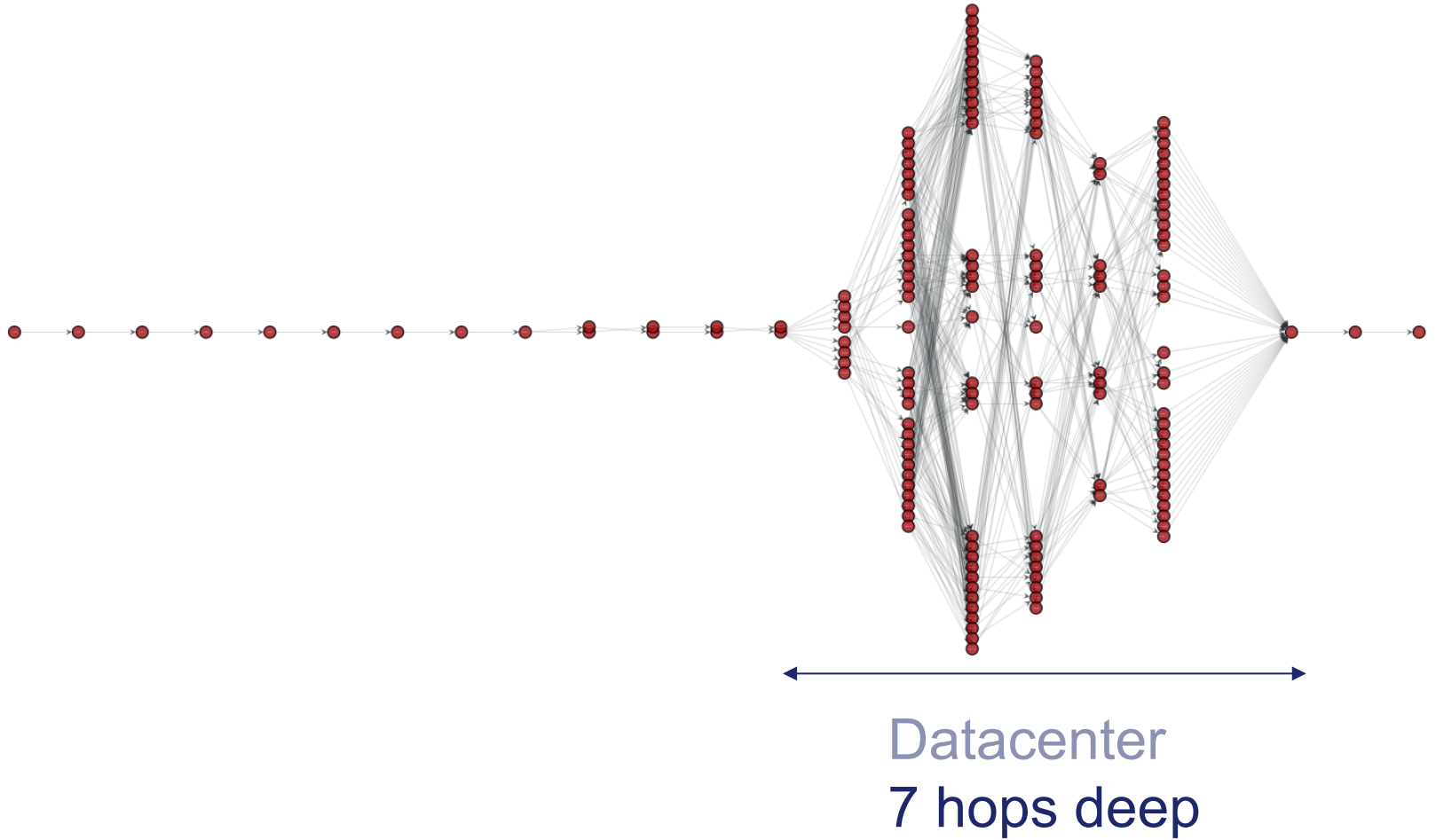
16 interfaces

**Towards more  
complexity?**

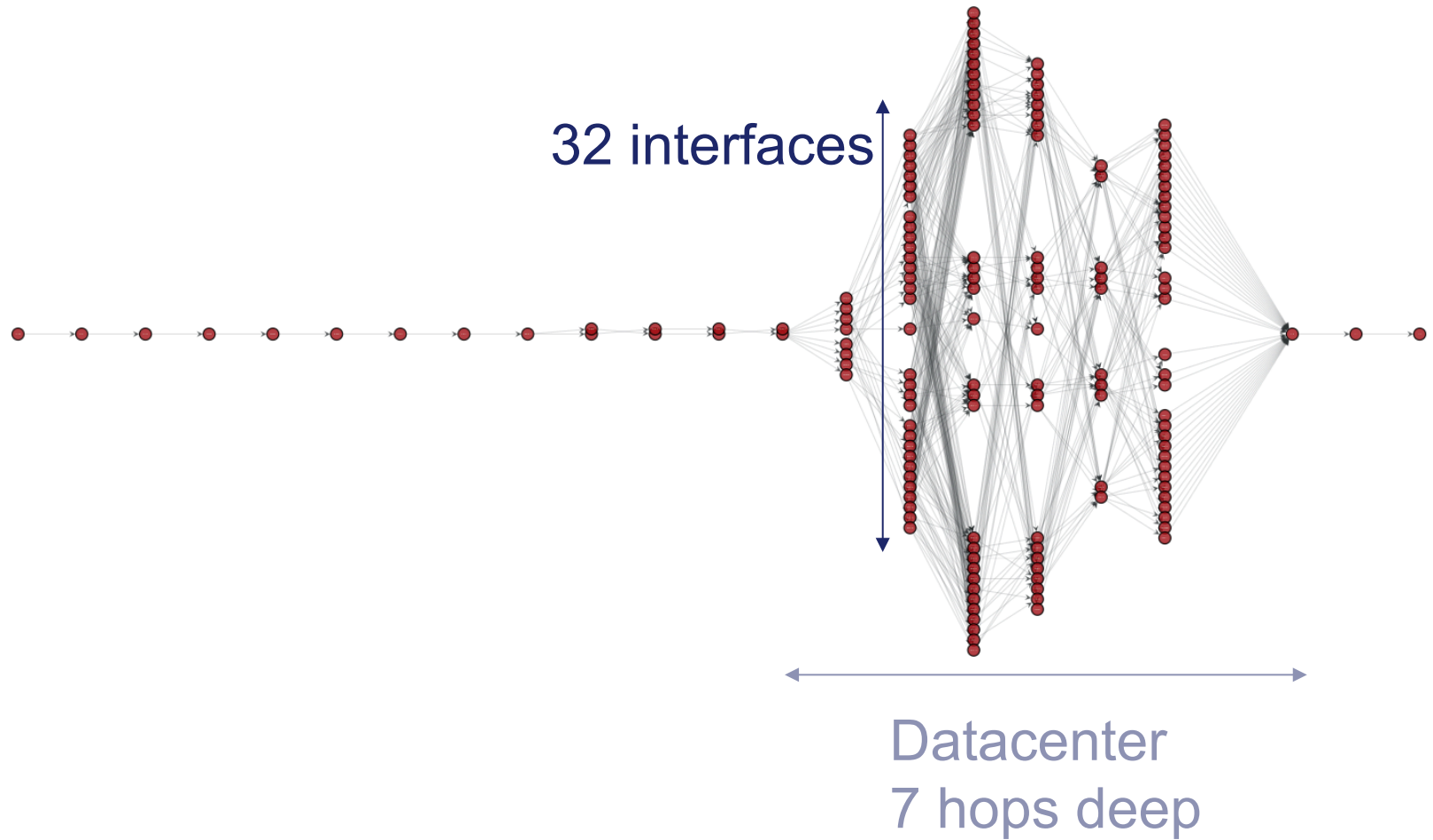
# Towards more complexity?



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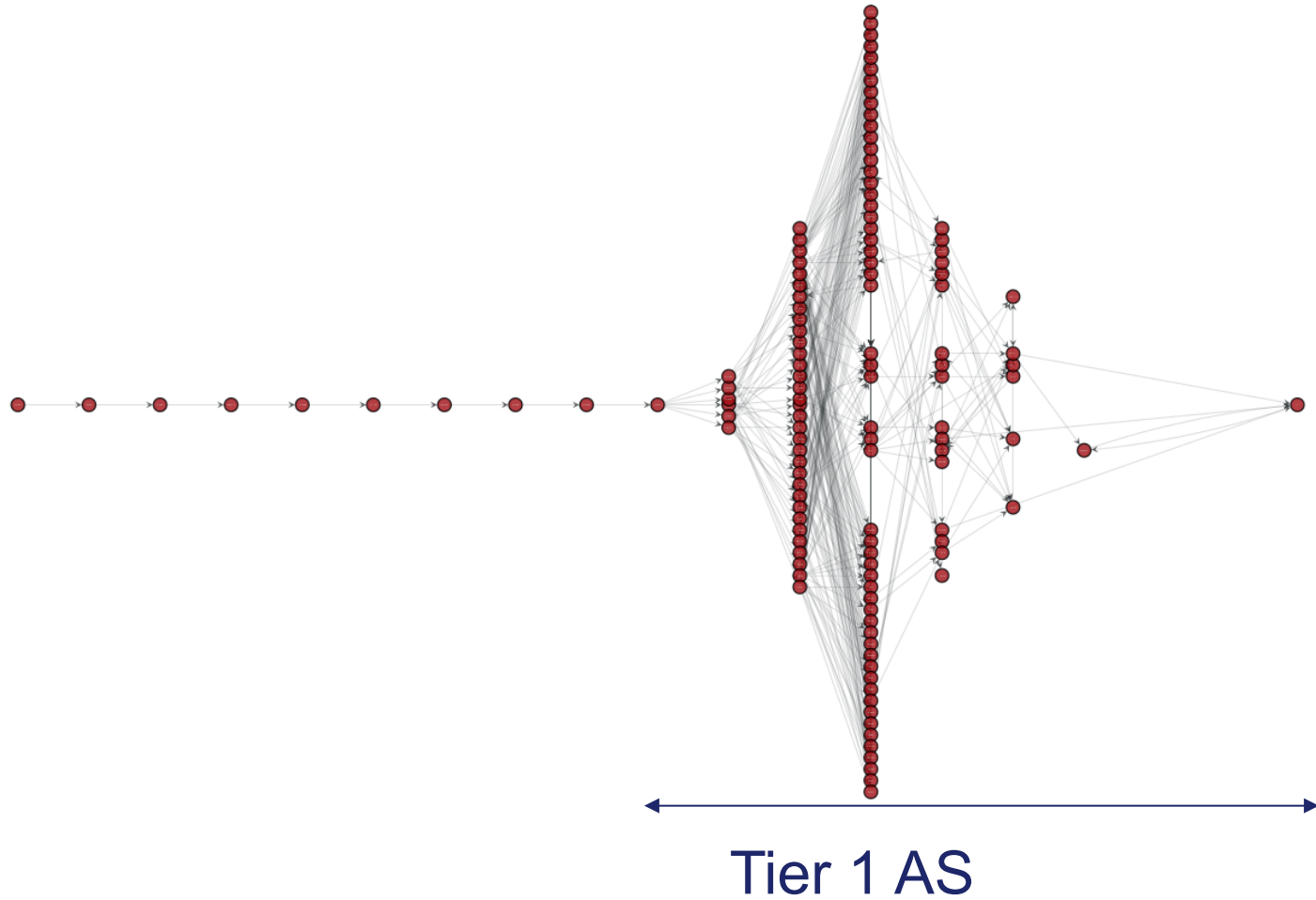


# Towards more complexity?

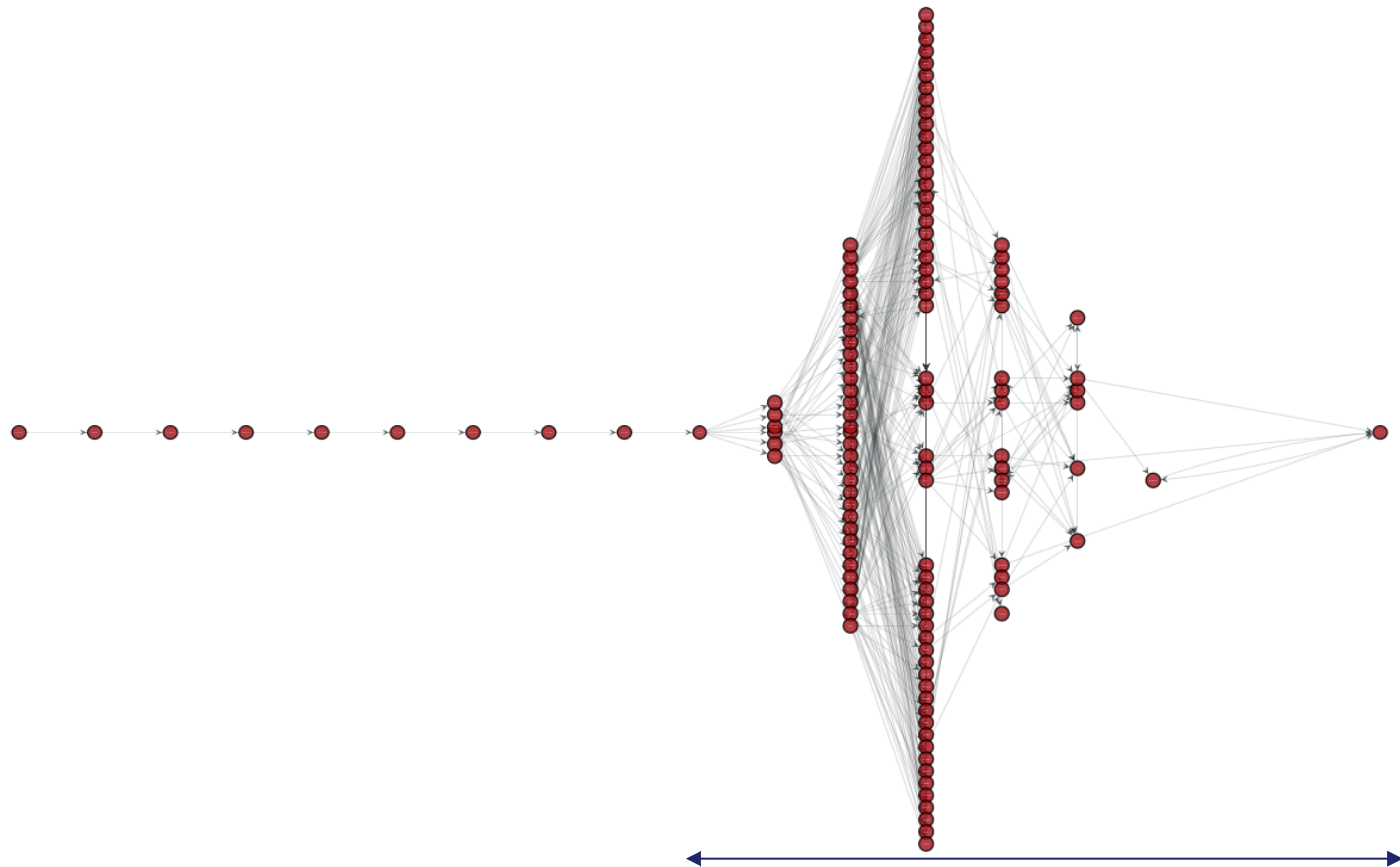




# Towards more complexity?



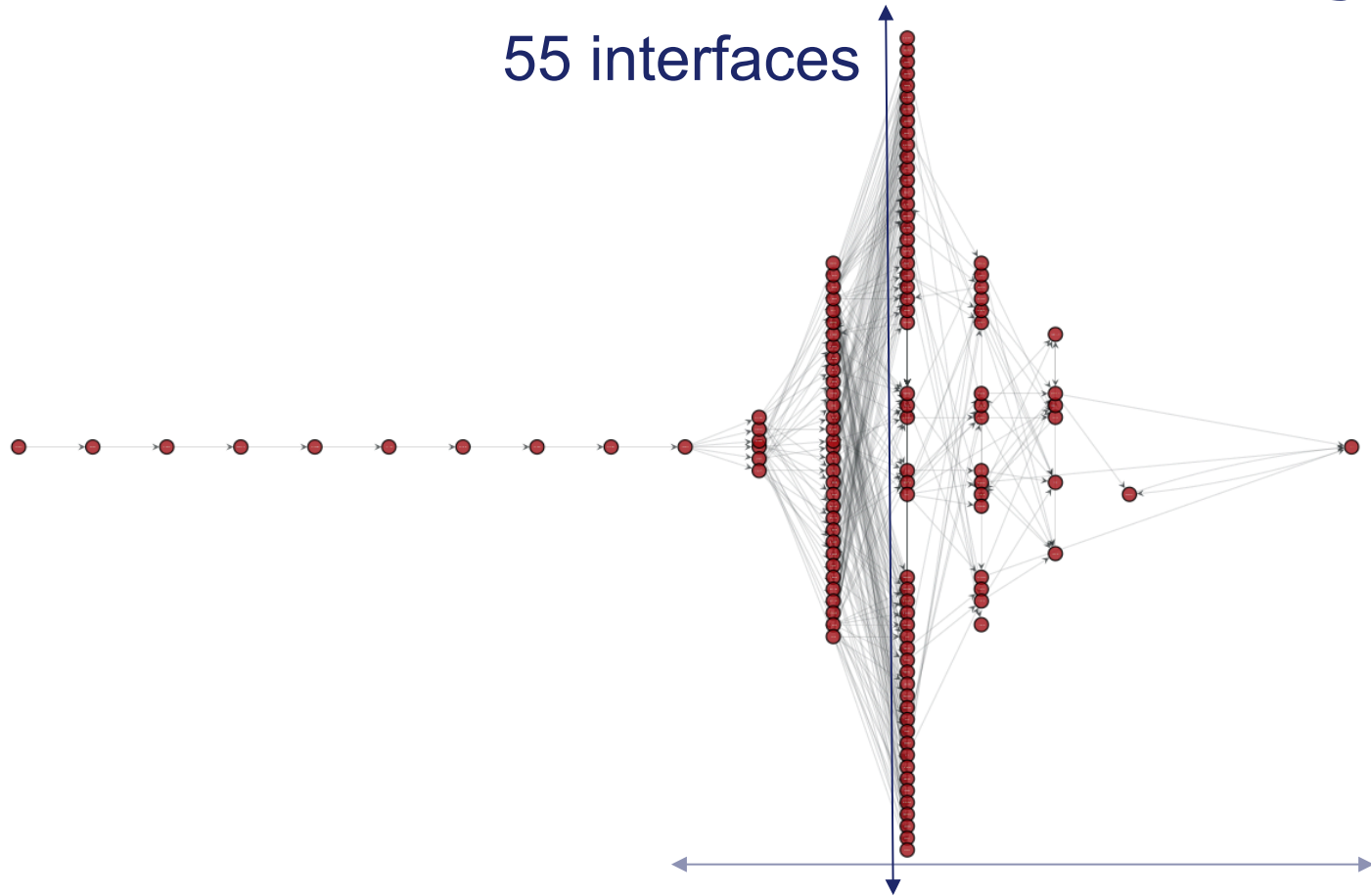
# Towards more complexity?



Tier 1 AS  
7 hops deep

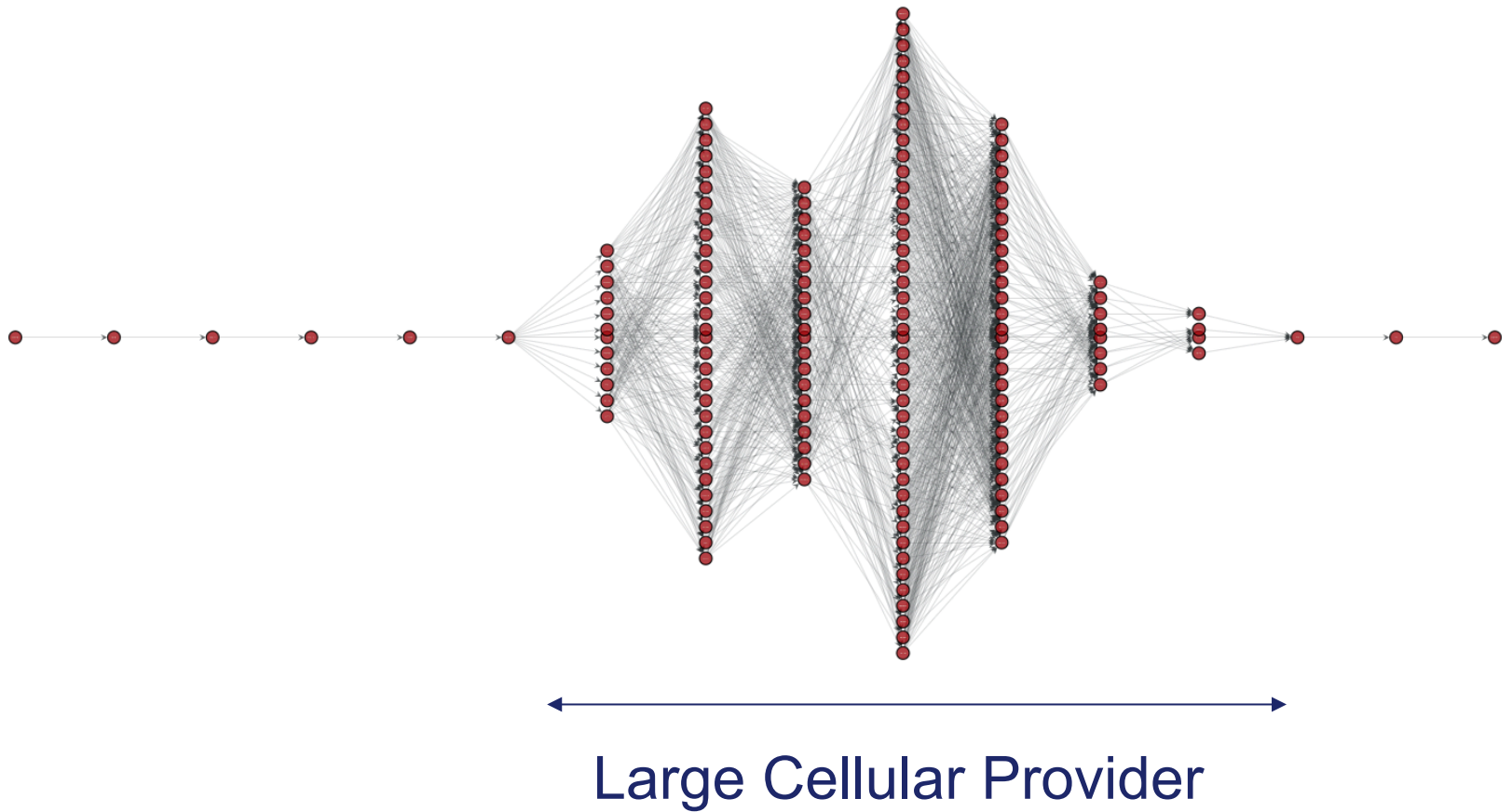
# Towards more complexity?

55 interfaces

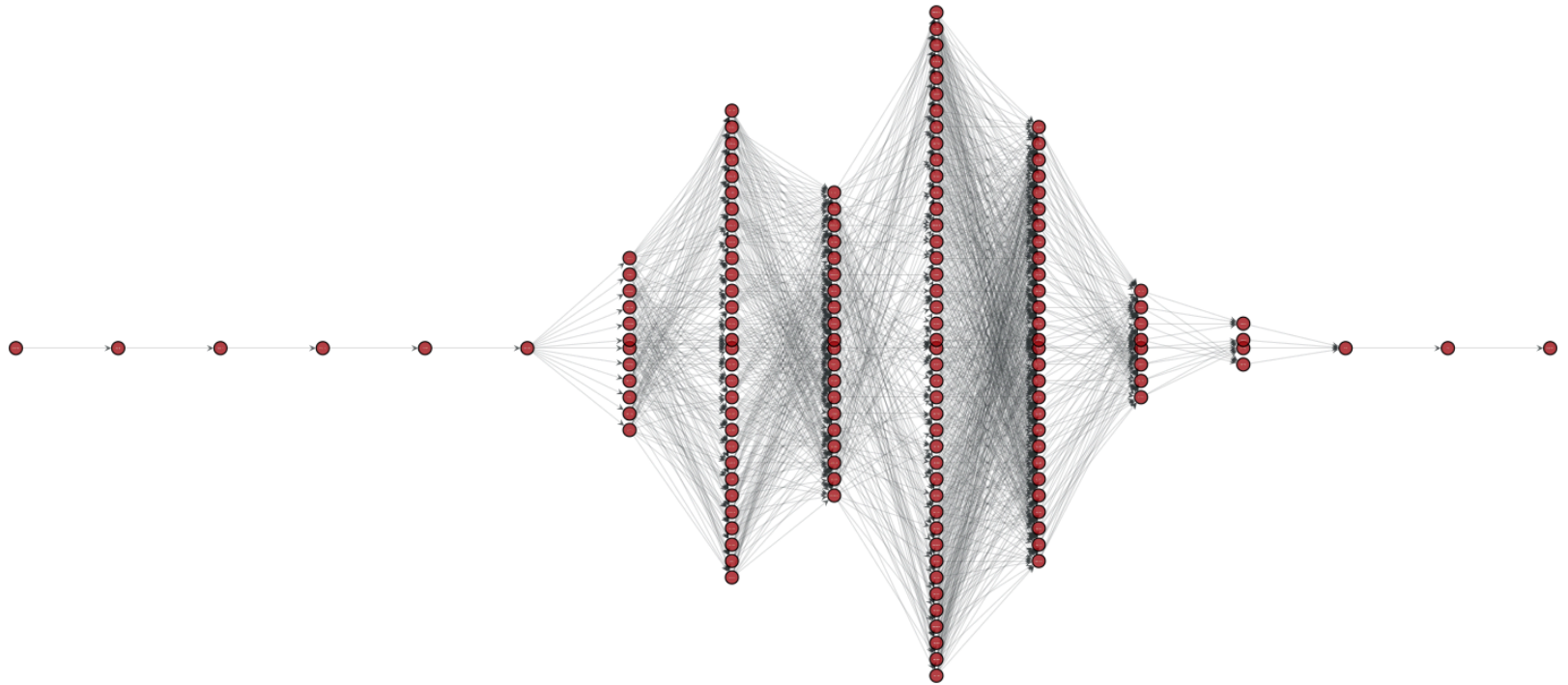


Tier 1 AS  
7 hops deep

# Towards more complexity?

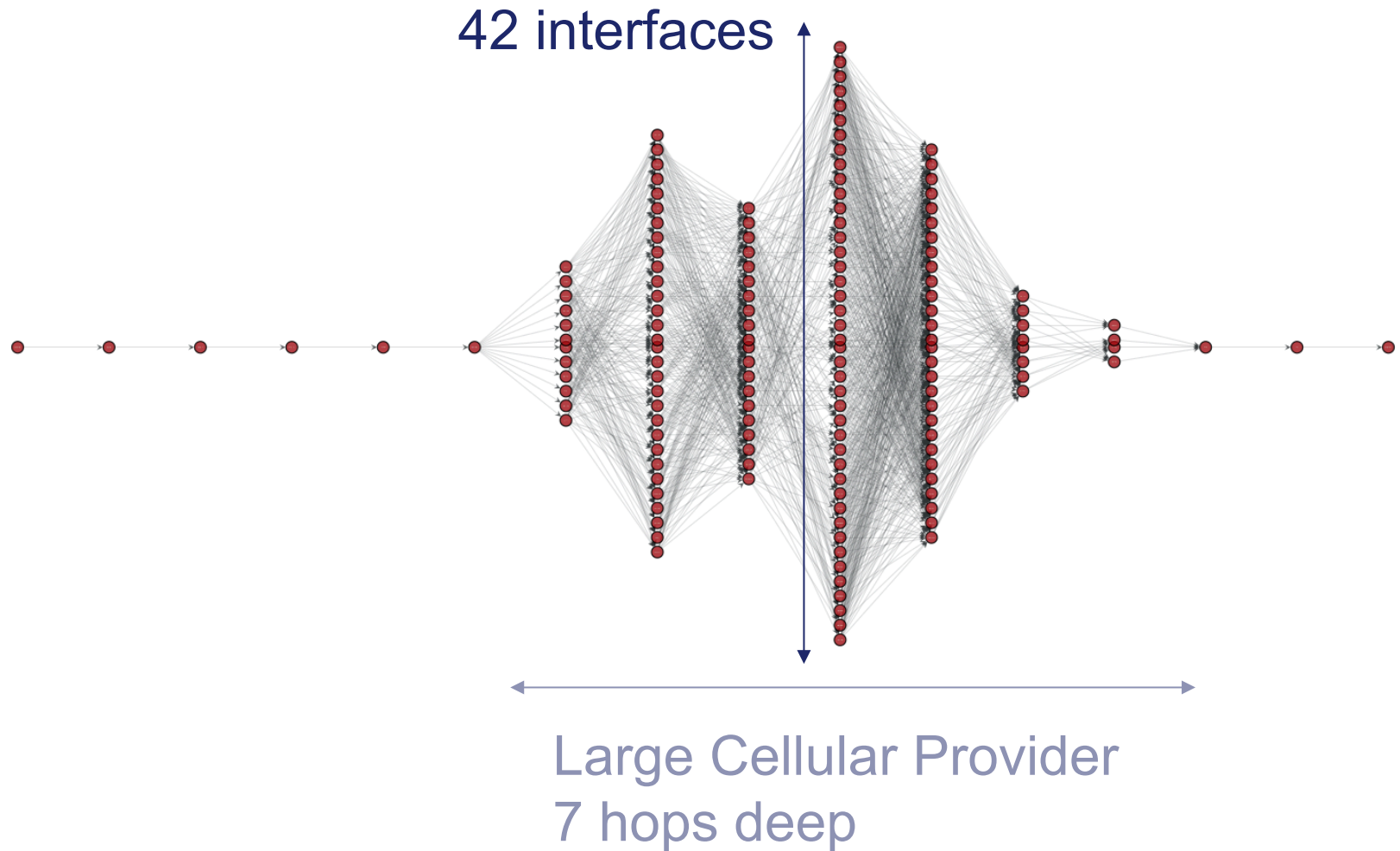


# Towards more complexity?

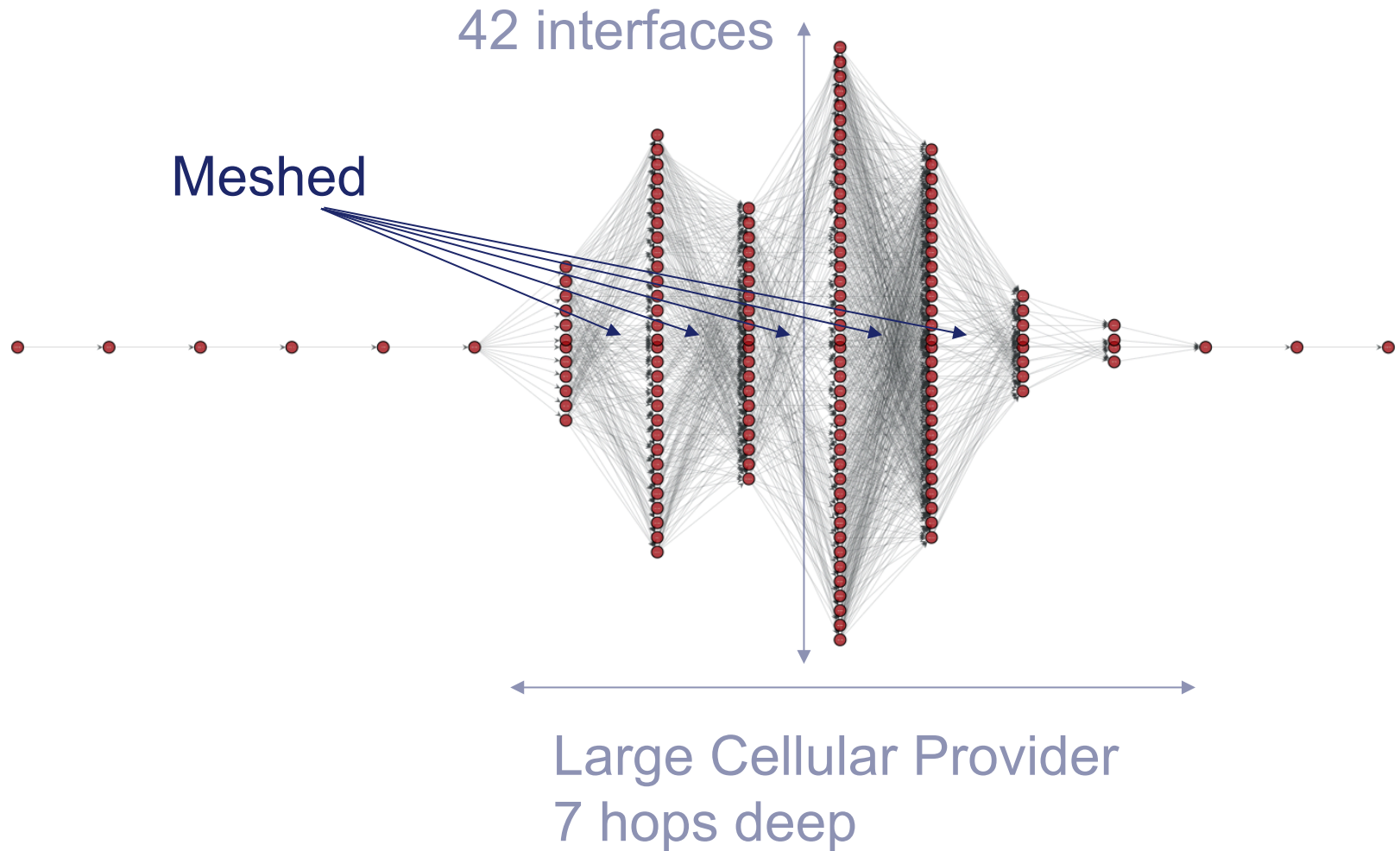


Large Cellular Provider  
7 hops deep

# Towards more complexity?



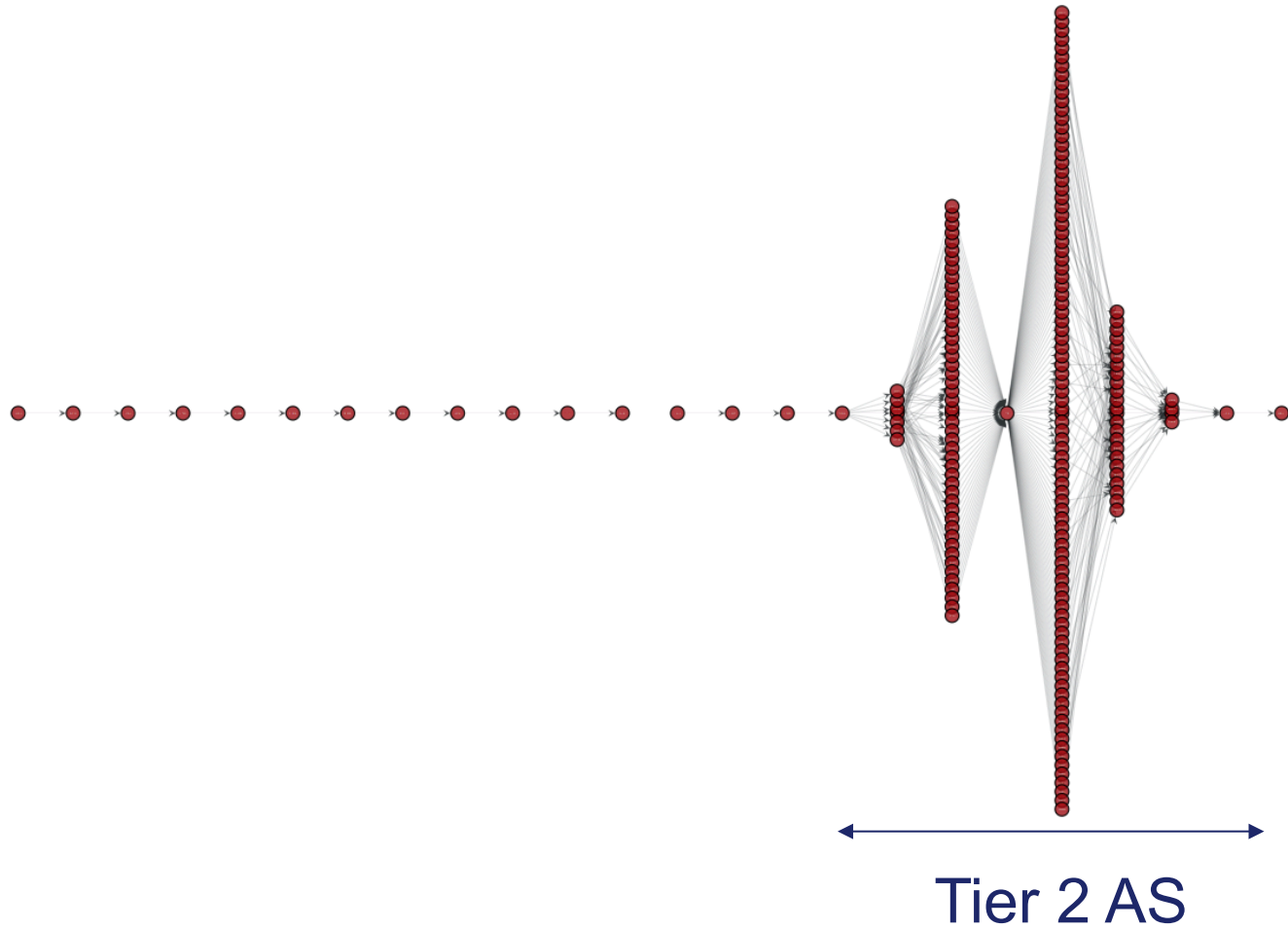
# Towards more complexity?



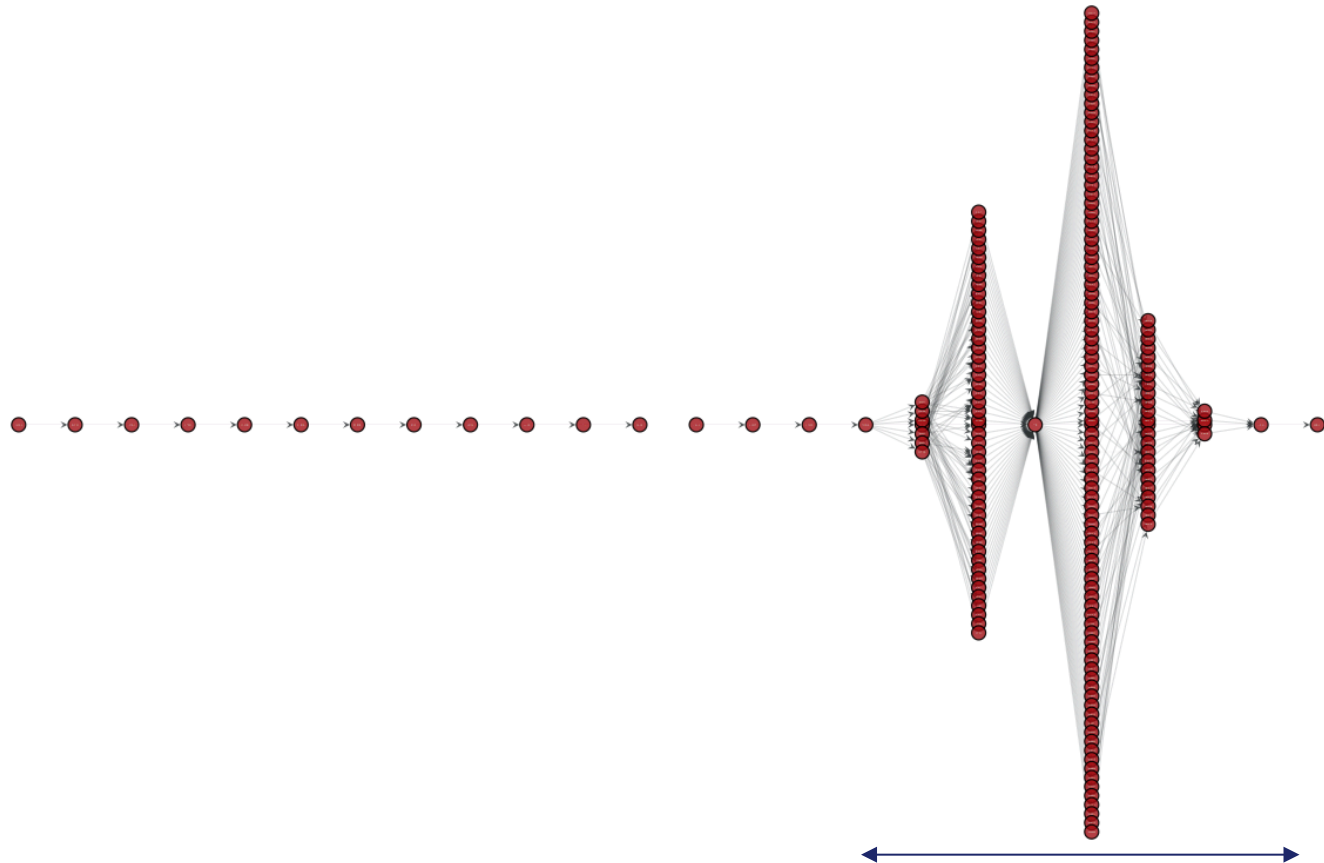
# **Most common cases**



## Most common cases



## Most common cases



Tier 2 AS  
7 hops deep

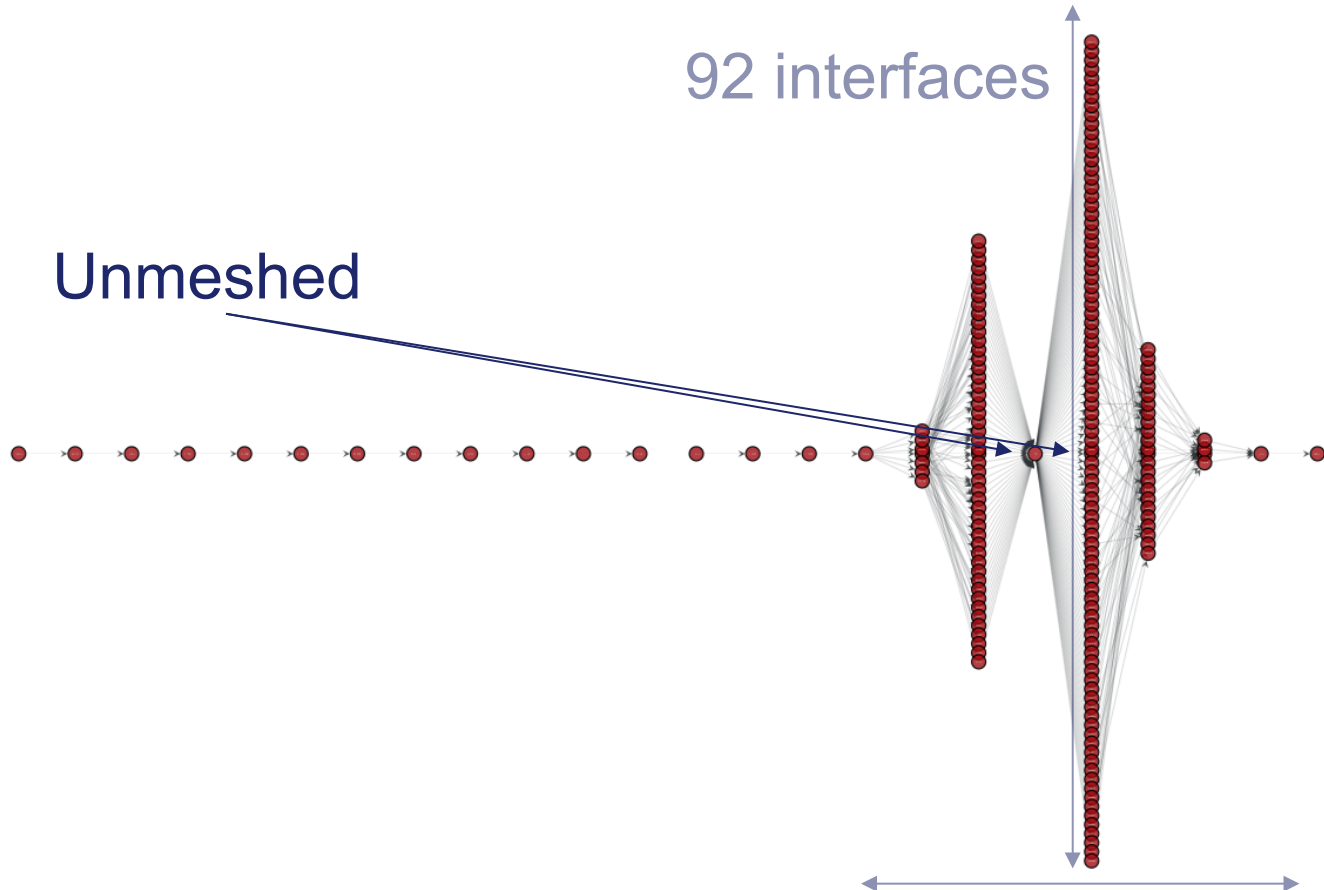
## 92 interfaces



# Most common cases

92 interfaces

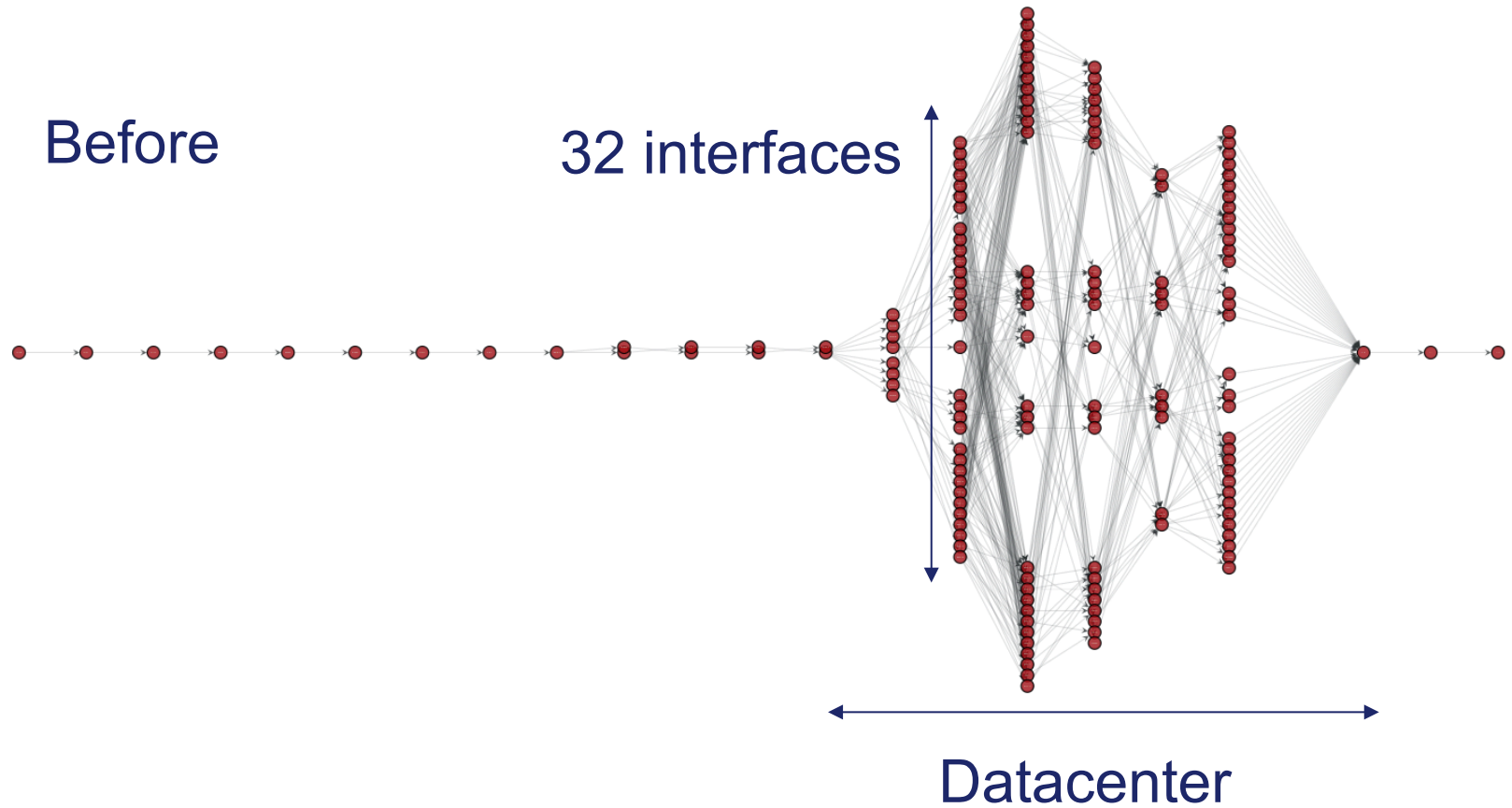
Unmeshed



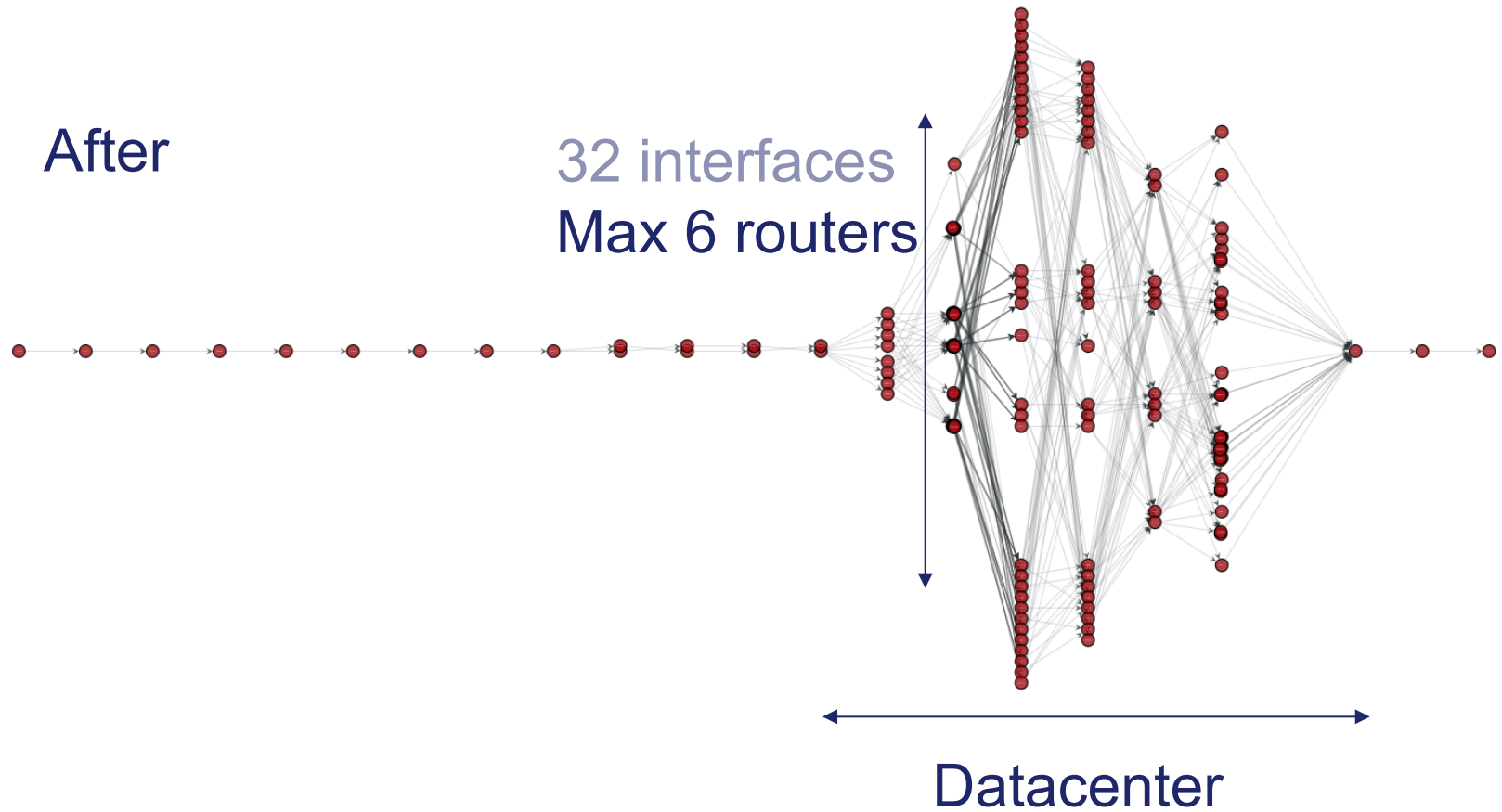
Tier 2 AS  
7 hops deep

**Are topologies really this complex?**

# Multilevel route tracing



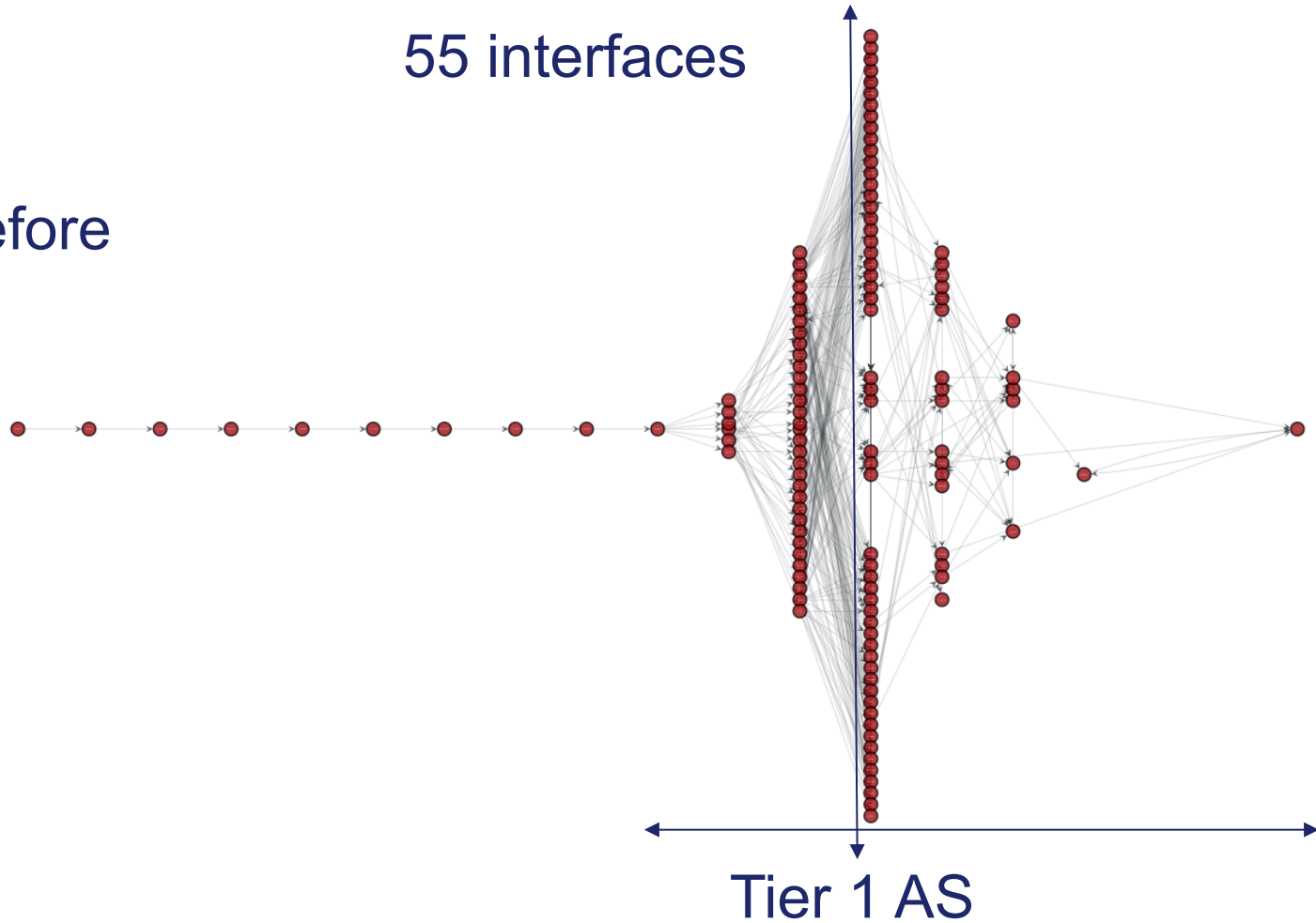
# Multilevel route tracing



# Multilevel route tracing

55 interfaces

Before

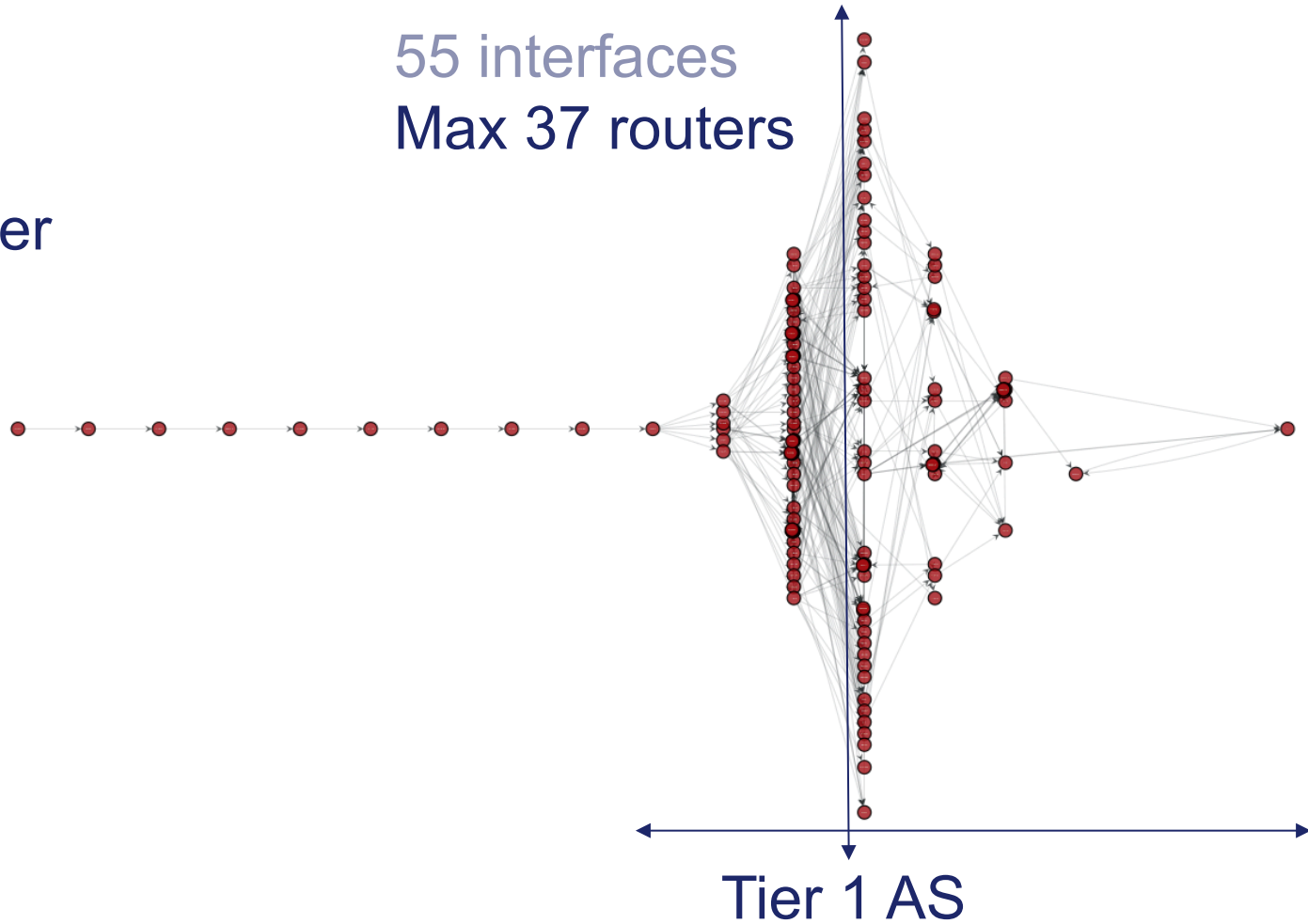




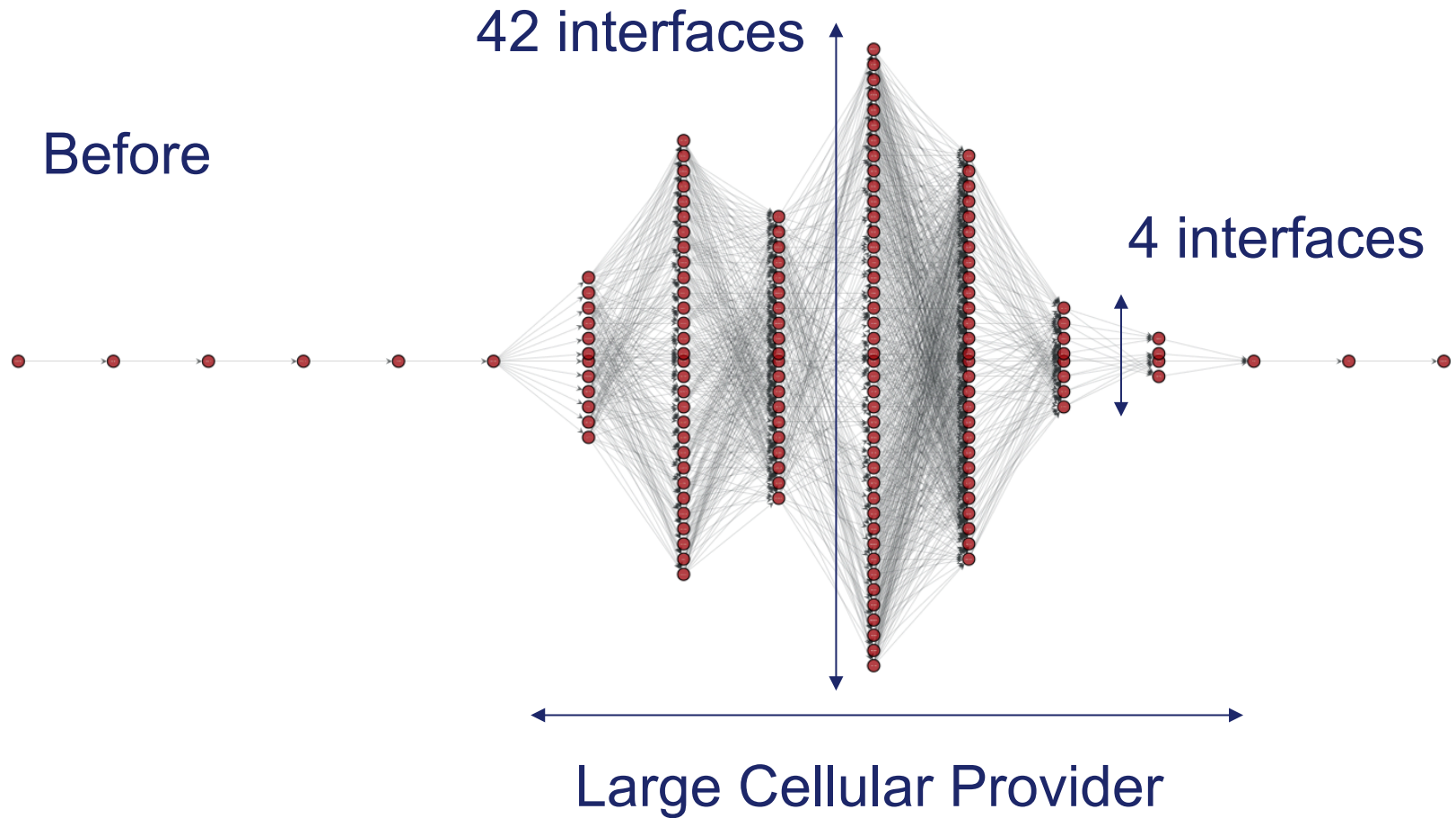
# Multilevel route tracing

55 interfaces  
Max 37 routers

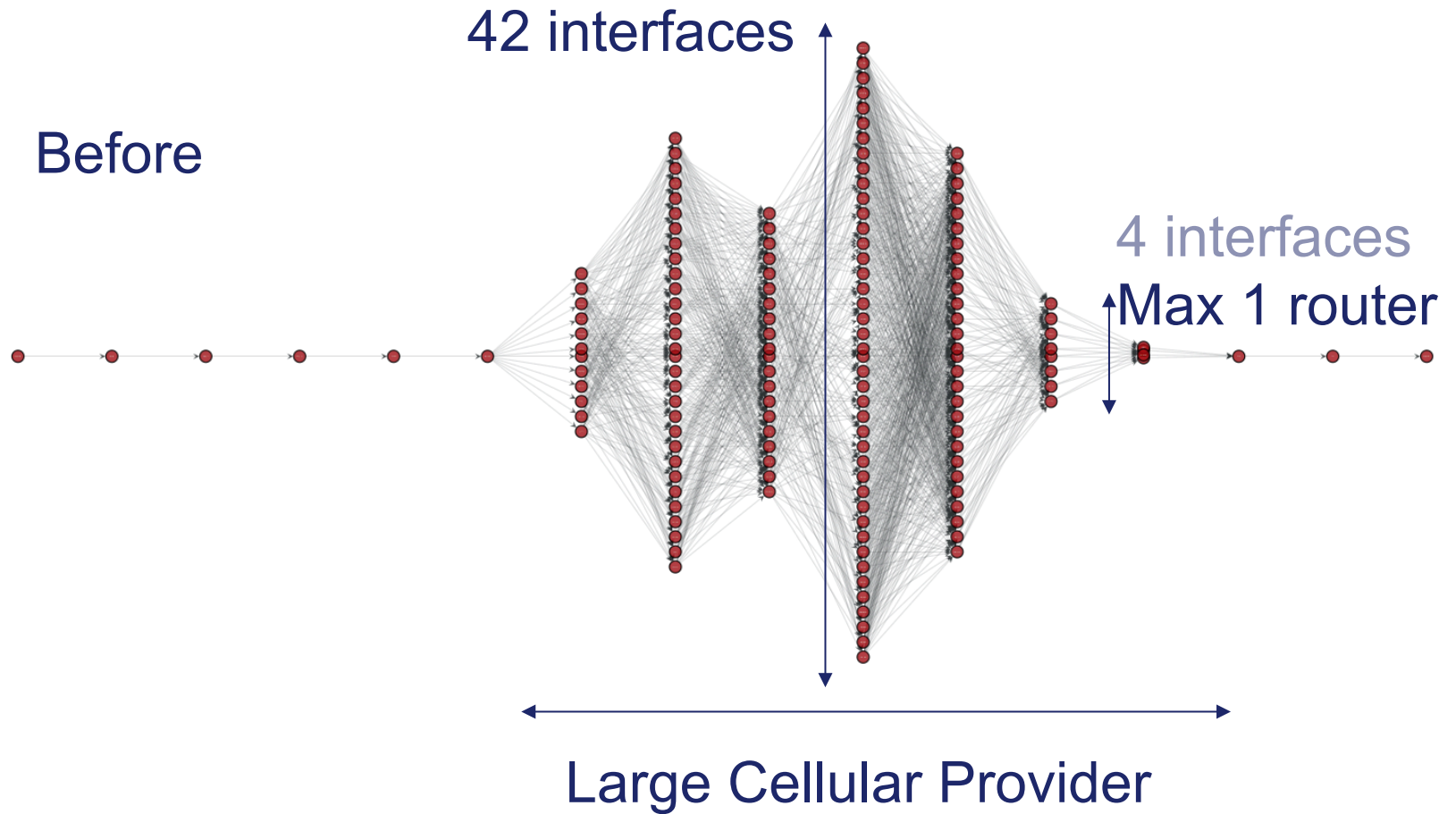
After



# Multilevel route tracing



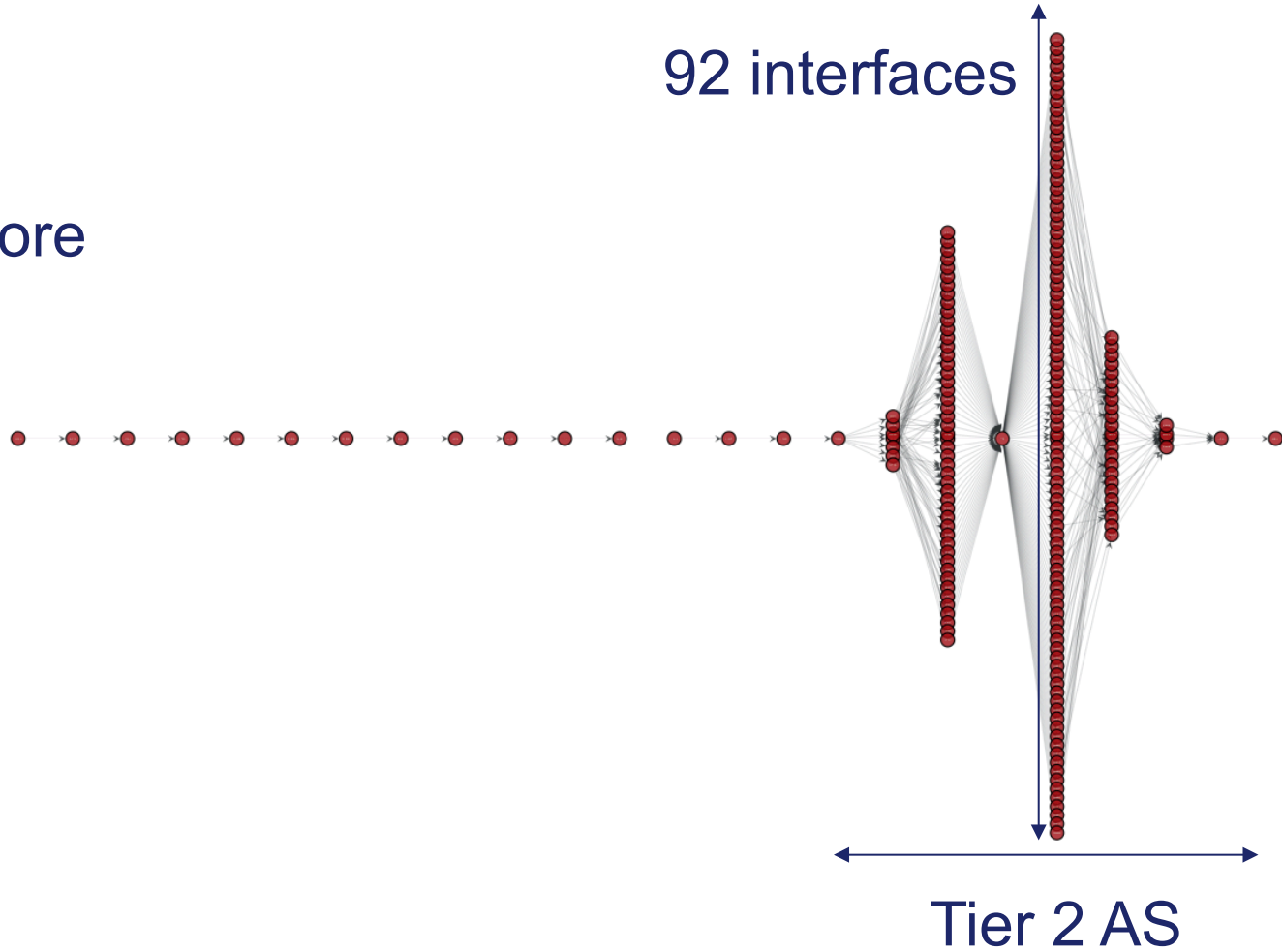
# Multilevel route tracing



# Multilevel route tracing

92 interfaces

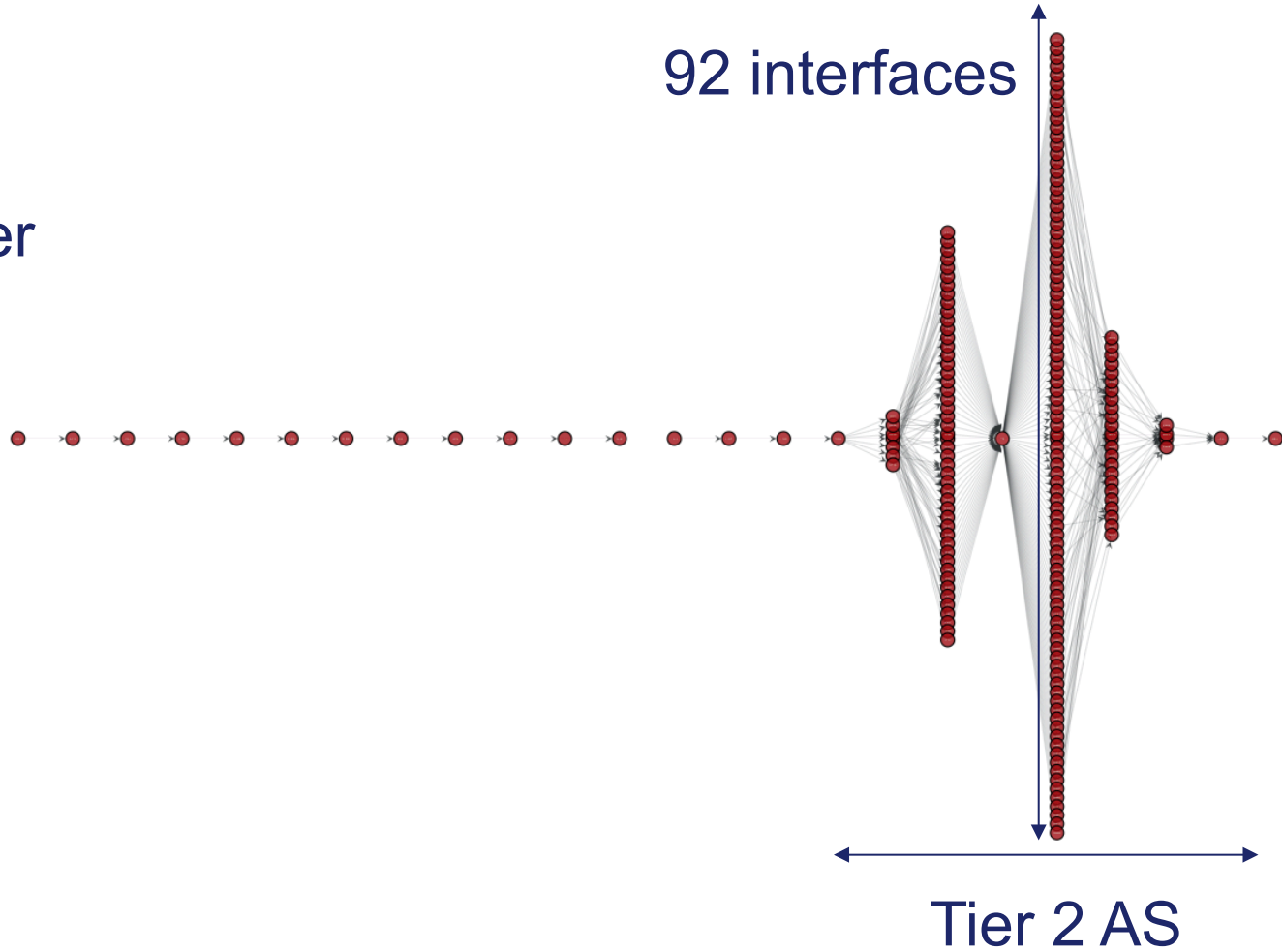
Before



# Multilevel route tracing

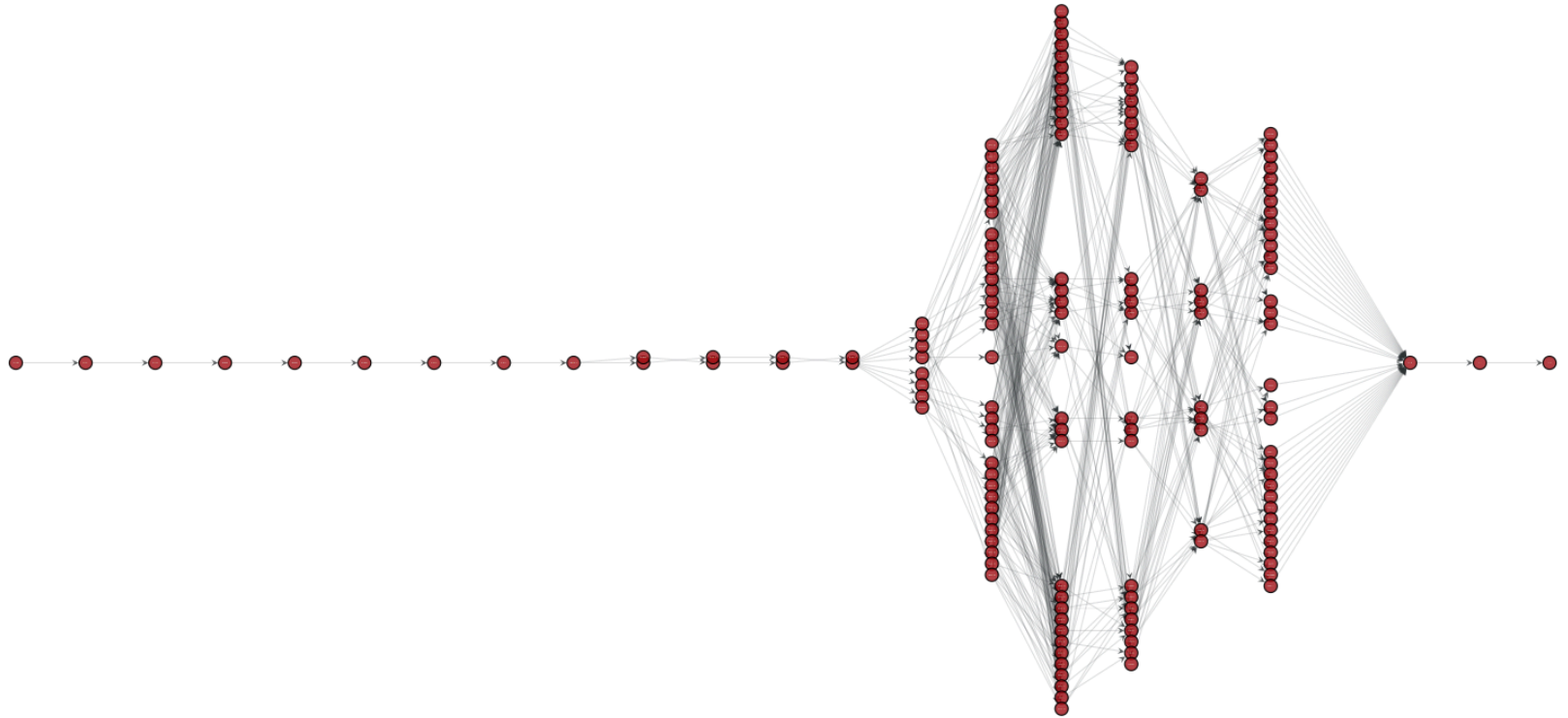
92 interfaces

After

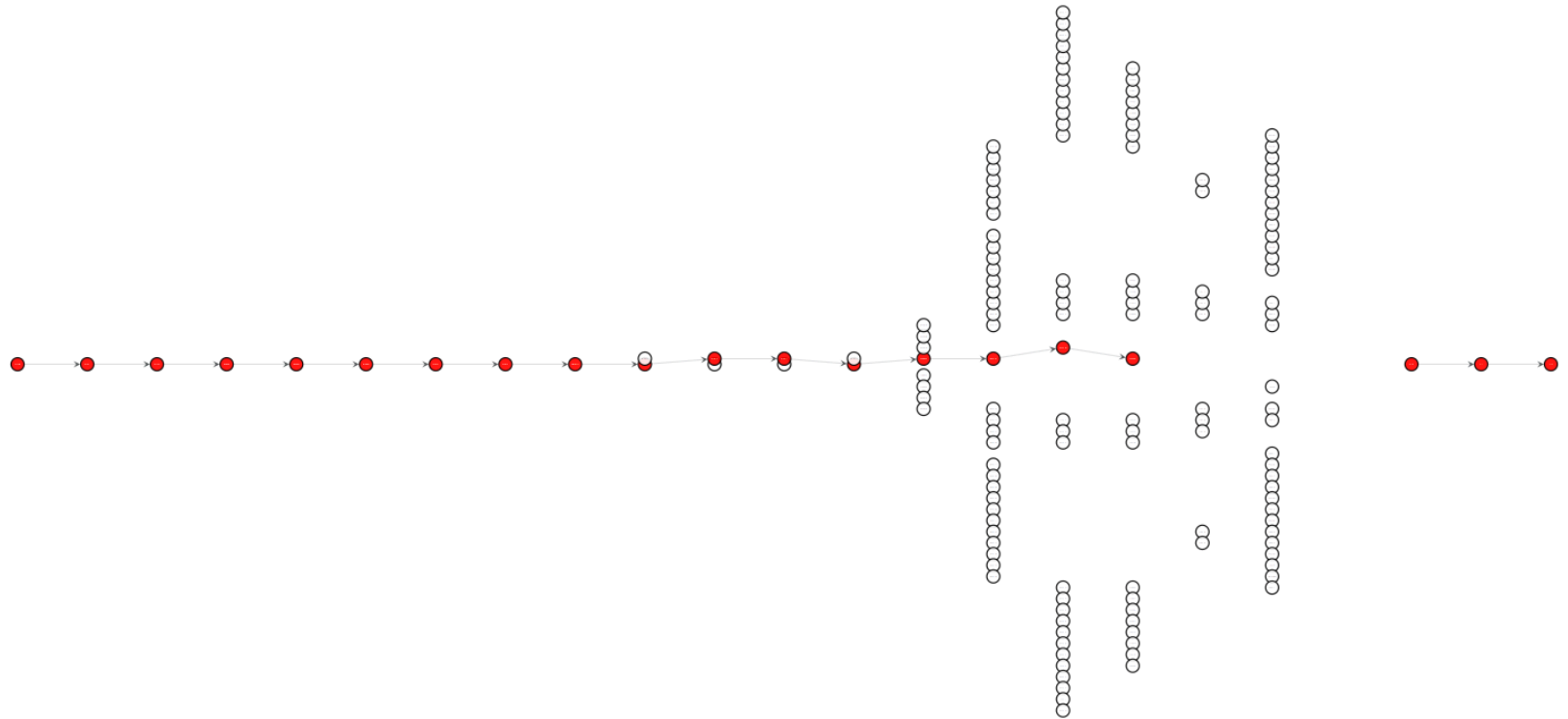


**On Atlas?**

# On Atlas?

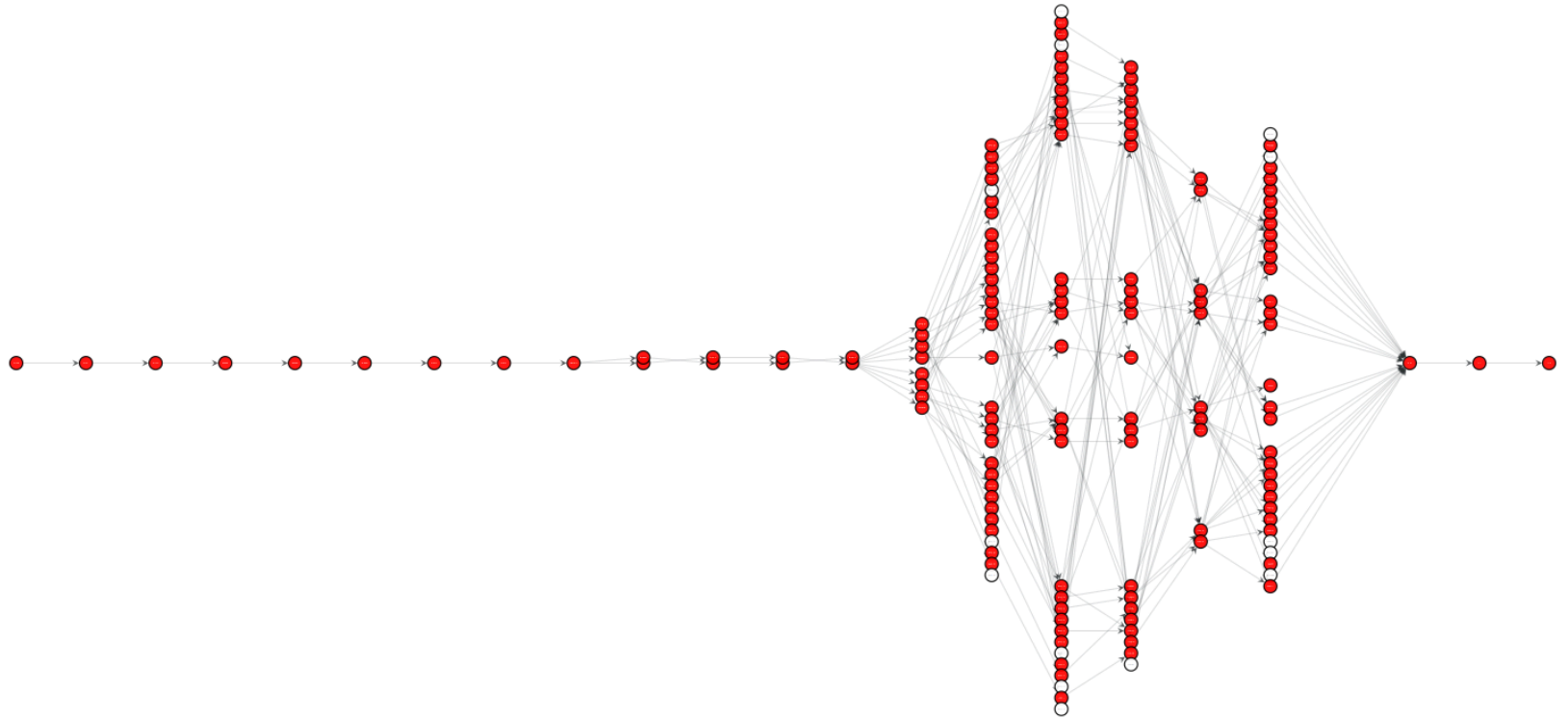


## On Atlas?

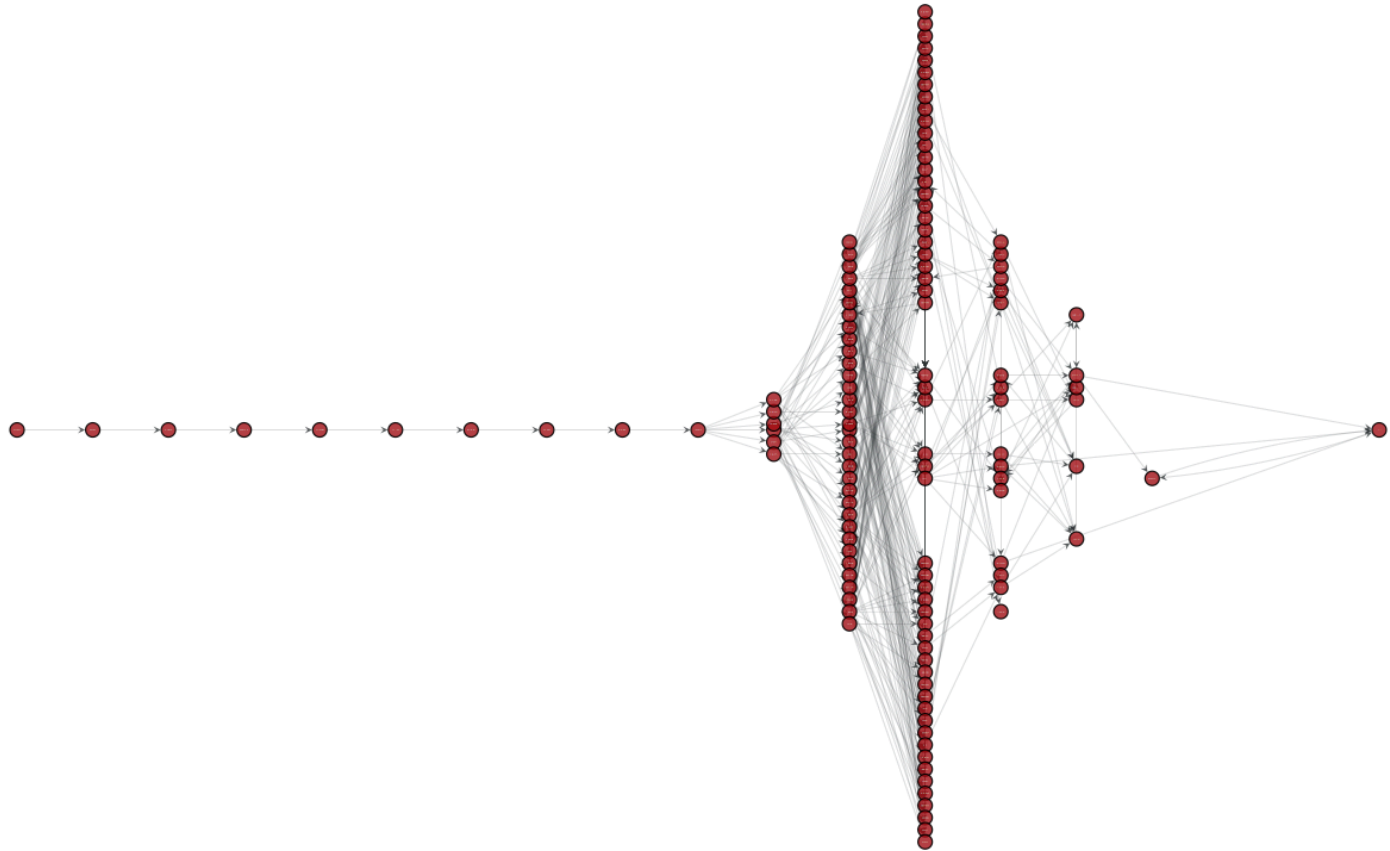




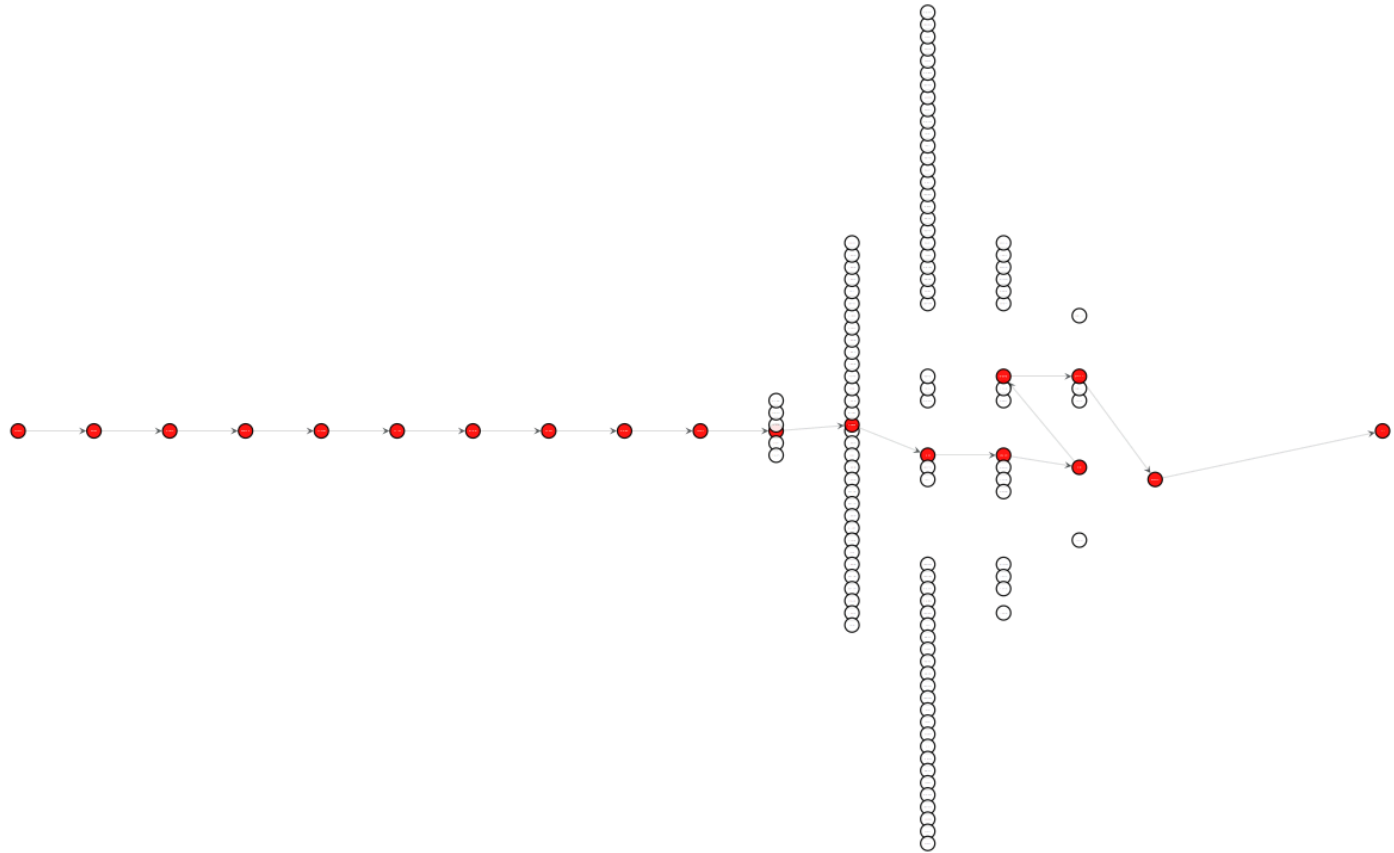
# On Atlas?



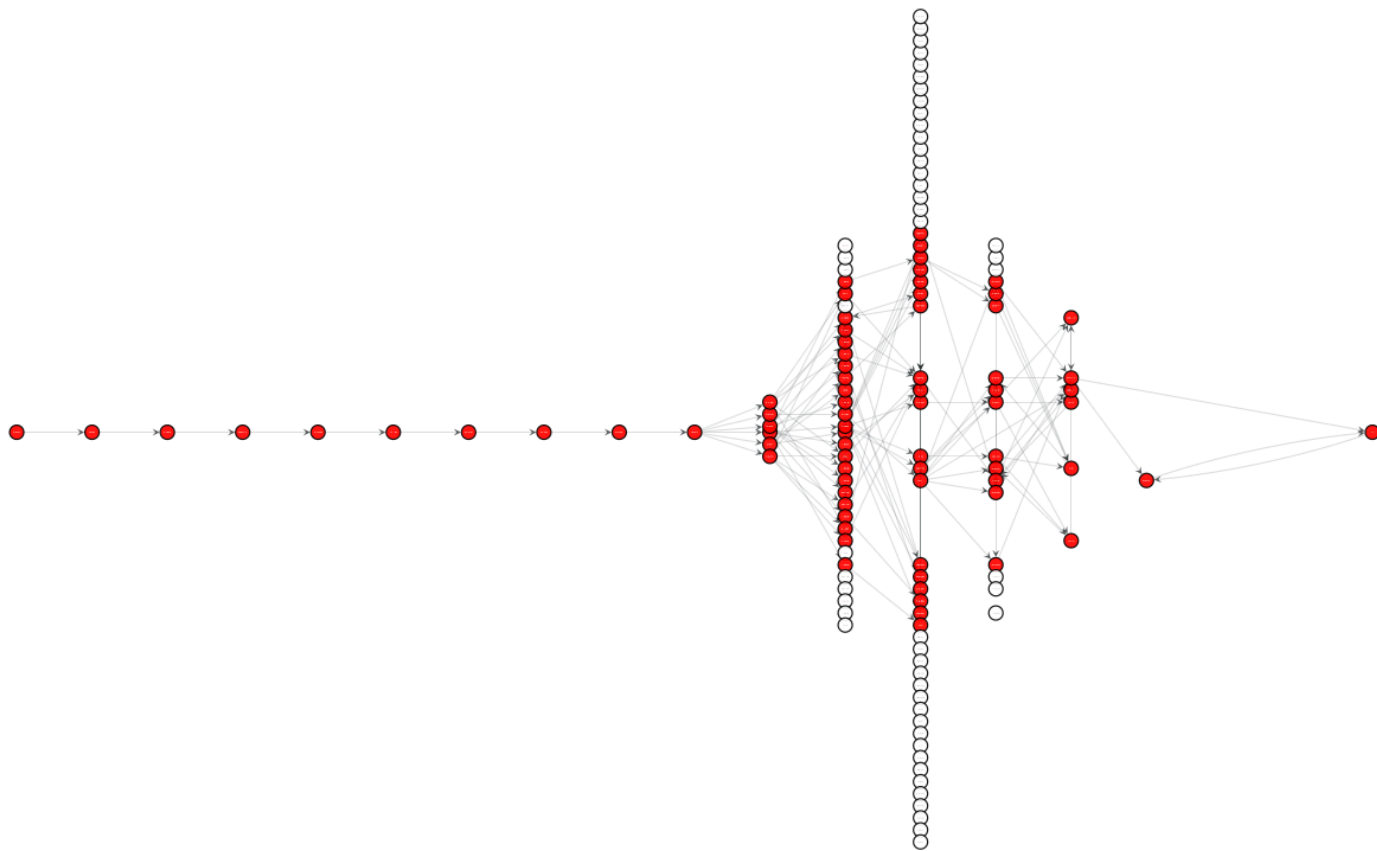
# On Atlas?



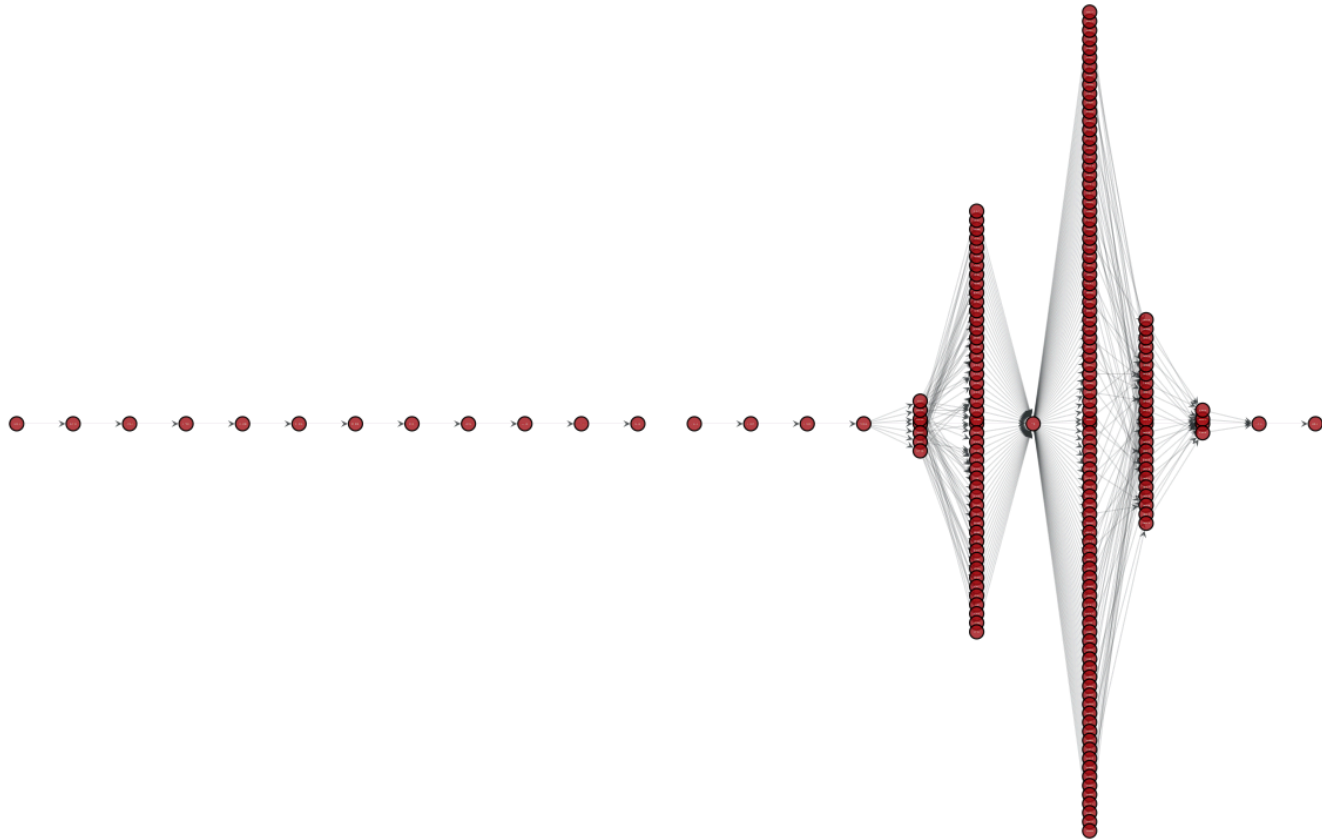
## On Atlas?



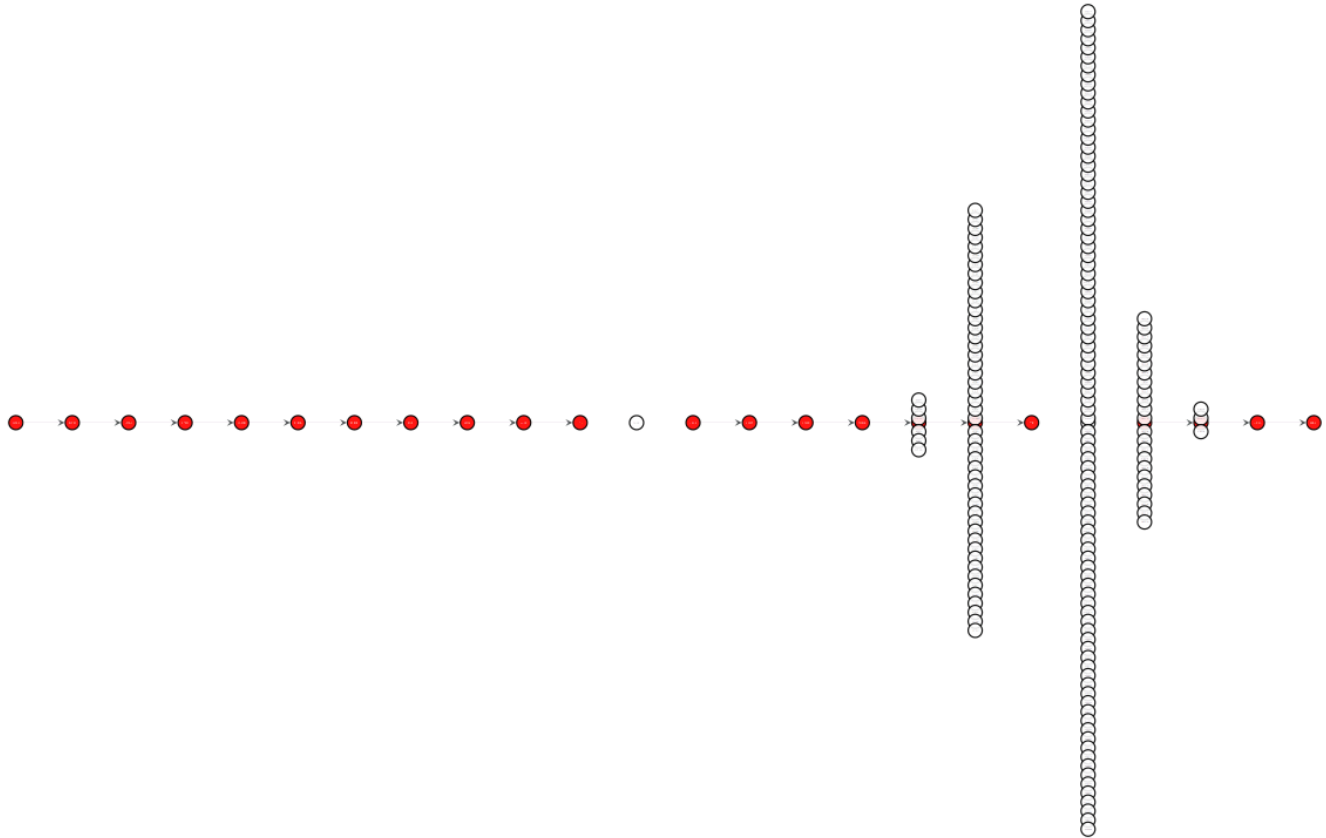
## On Atlas?



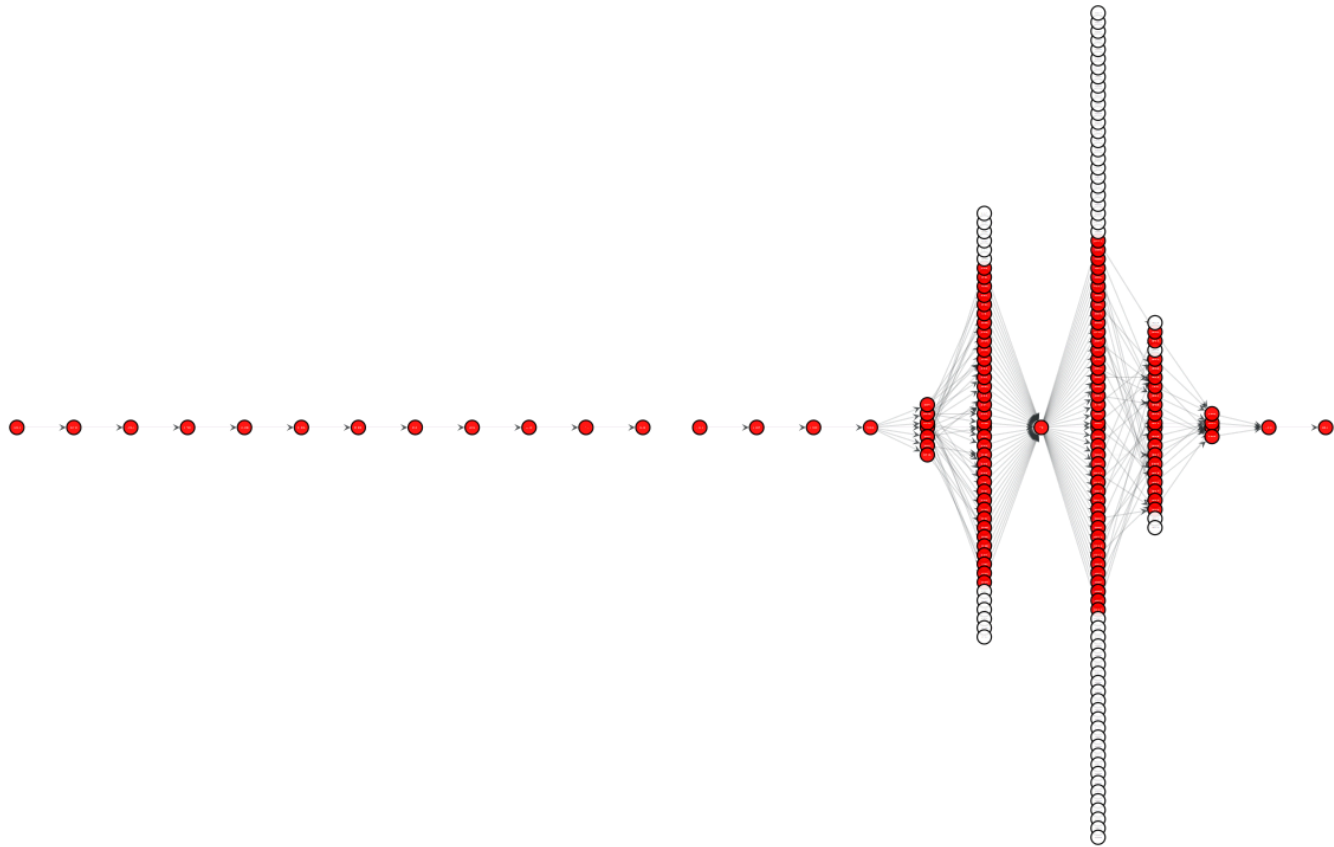
# On Atlas?



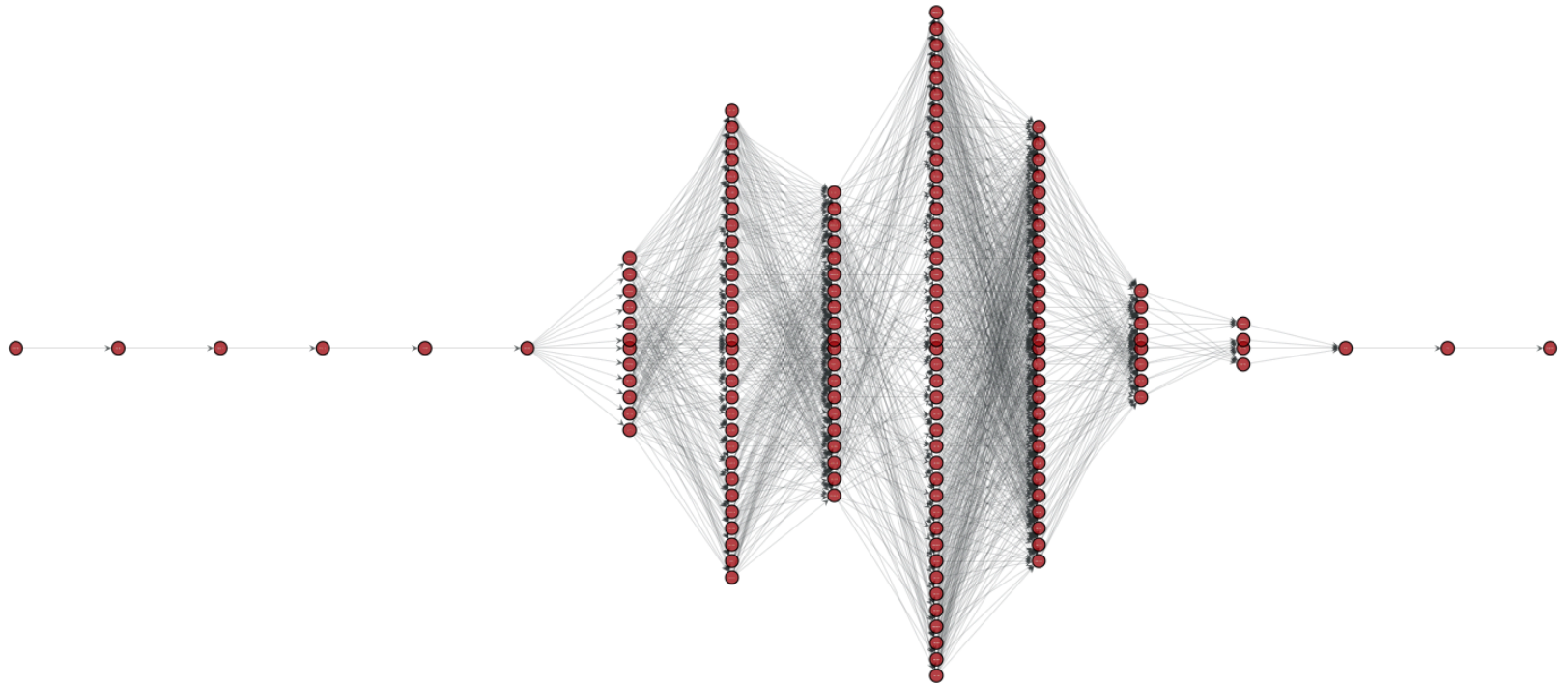
# On Atlas?



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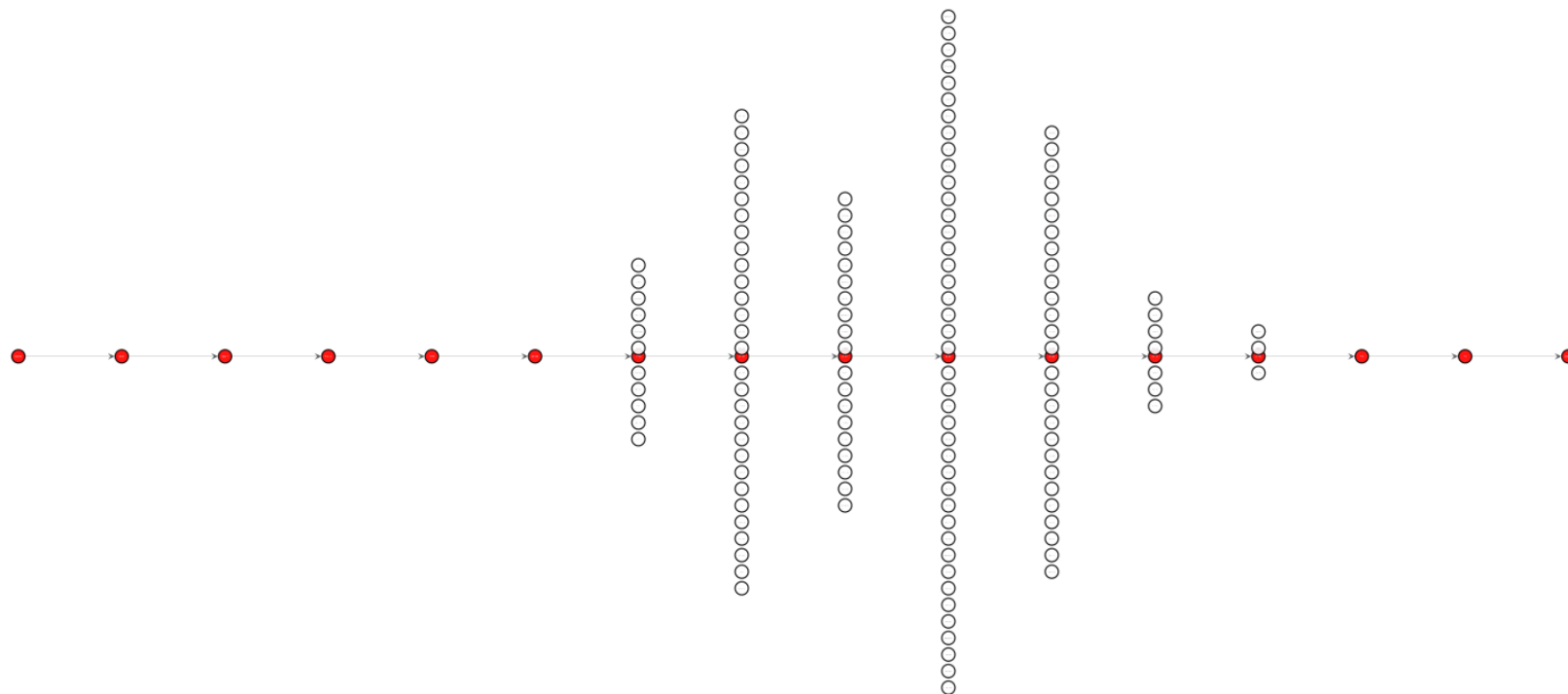


# On Atlas?

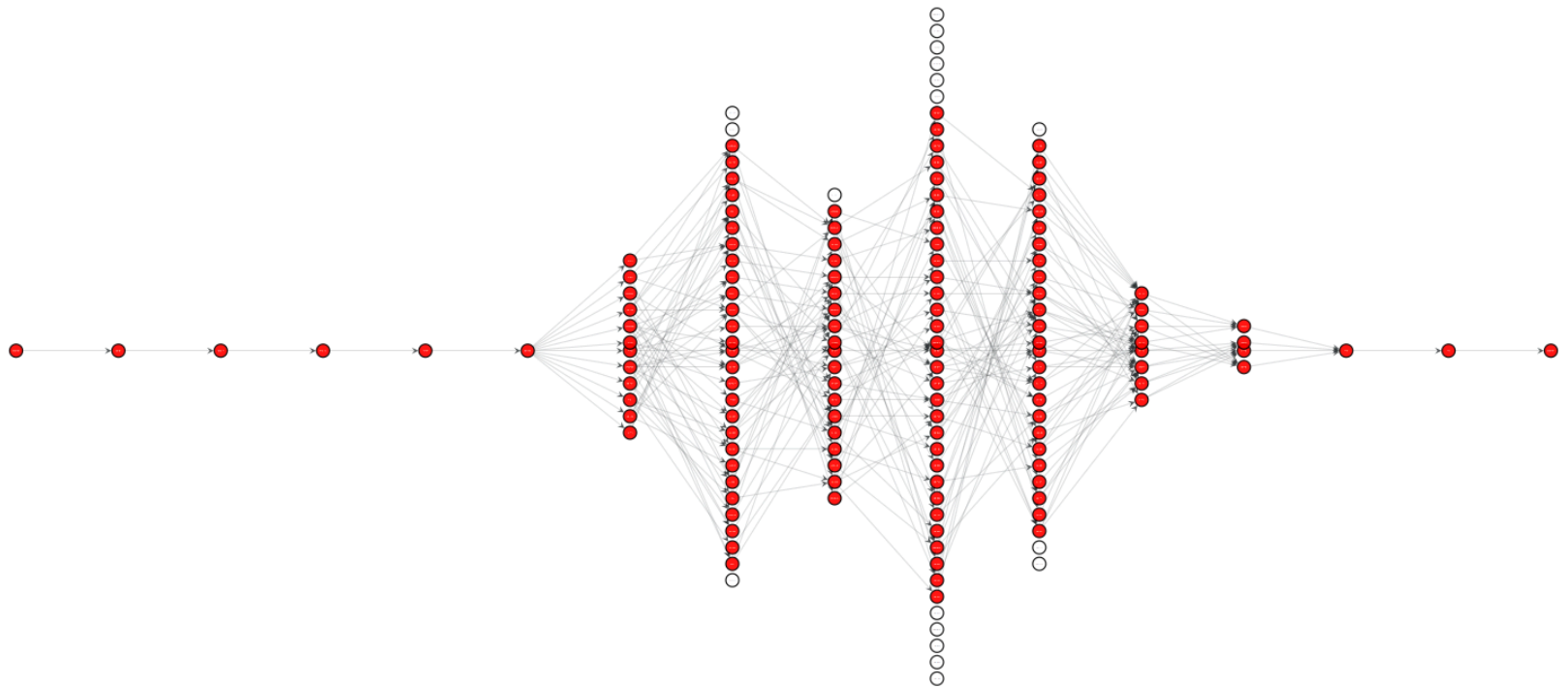




# On Atlas?



# On Atlas?



## HOW?

- **Respect resource constraints**
- **Do not swamp home DSL**
- **Open question of NAT recrafting packets?**

**Interesting for the  
community?**

**Want to test the tool?**

**<https://gitlab.planet-lab.eu/cartography/>**

MERCI

