

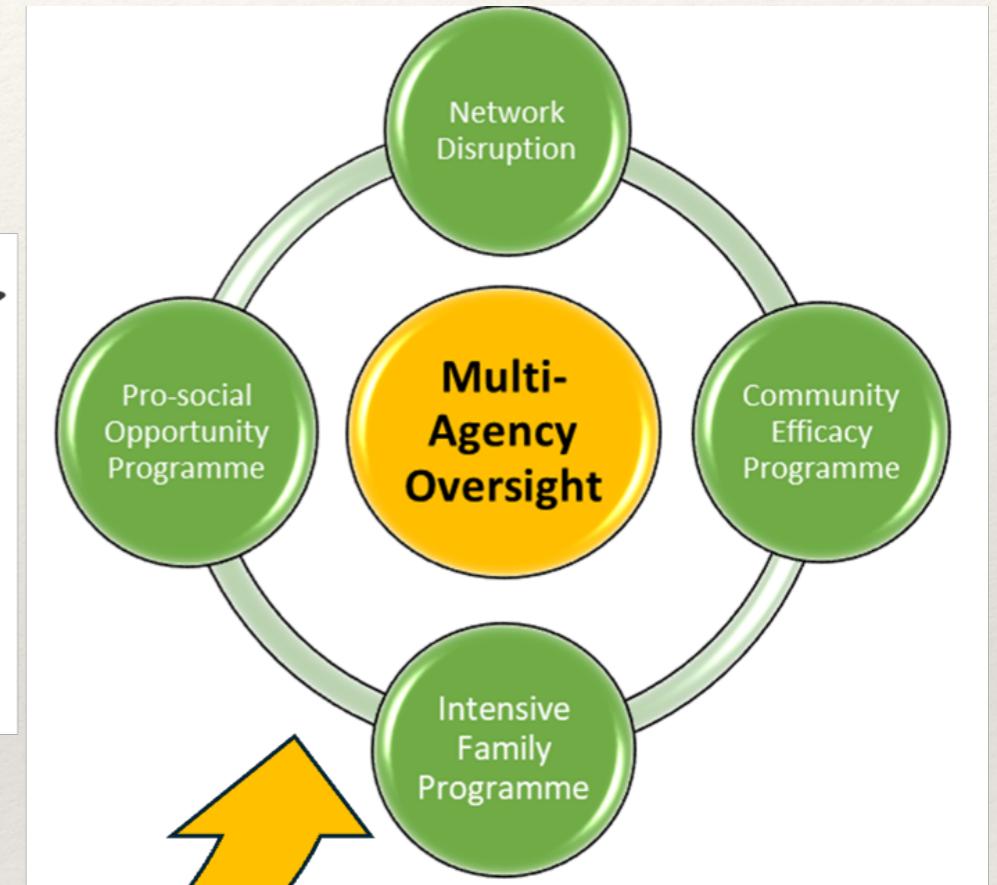
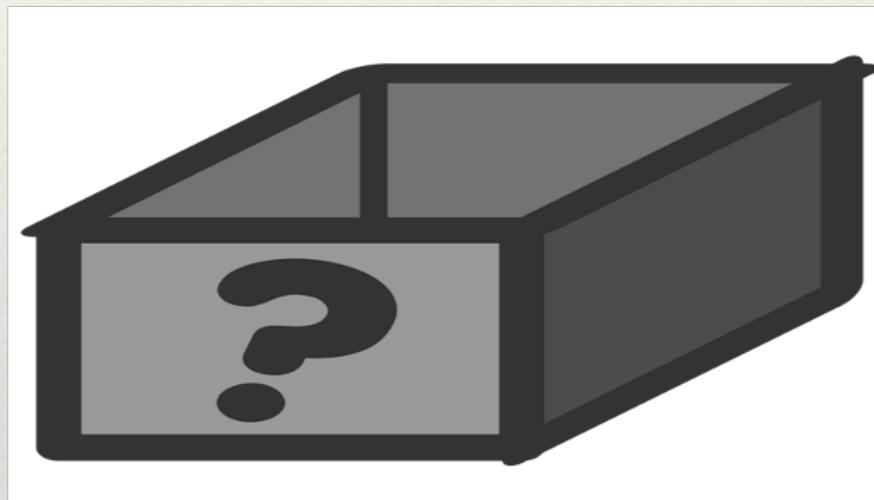
# Network Science Taster Session

Dr. Jacob Young  
Arizona State University

Dr. Seán Redmond  
University of Limerick

# Intervening with Children Involved in Crime Networks

Rank	Location	Offences 2010 and 2011 offender aged 17 or less				Number of unique offenders 2010 and 2011			
		01 Drugs for Sale and Supply	02 Burglaries	03 Robberies	Total	01 Drugs for Sale and Supply	02 Burglaries	03 Robberies	Total
1	Bluetown	28	4	2	34	20	4	2	26
2	Redtown	23	61	27	111	15	33	21	69
3	Yellowtown	21	12	13	46	15	7	4	26
4	Orangetown	18	10	13	41	14	1	8	23
5	Whitetown	17	7	16	40	5	2	13	20
6	Blacktown	16	23	13	52	12	8	5	25
7	Greytown	13	23	11	47	11	12	4	27
8	Brownstown	12	5	5	22	9	3	3	15
9	Purpletown	12	3	31	46	6	1	19	26
10	Pinktown	11	15	15	41	6	6	3	15
11	Greentown	10	17	23	50	8	13	11	32
12	Area 12	9	31	23	63	9	19	14	42
13	Area 13	9	6	4	19	2	4	4	10
14	Area 14	6	40	41	87	6	13	21	40
15	Area 15	6	5	2	13	6	5	2	13
16	Area 16	5	13	7	25	5	7	7	19
17	Area 17	5	3	13	21	5	1	7	13
18	Area 18	5	8	4	17	5	4	3	12
19	Area 19	5	2	1	8	5	1	1	7
20	Area 20	5	12	0	17	4	9	0	13



# Why Networks?

NEWS IN BRIEF

# Sudden Death Of Aunt Creates Rupture In Family Gossip Pipeline

11/23/15 8:45am • SEE MORE: LOCAL ▾



<https://local.theonion.com/sudden-death-of-aunt-creates-rupture-in-family-gossip-p-1819578447>

# Sudden Death Of Aunt Creates Rupture In Family Gossip Pipeline

VIRGINIA BEACH, VA—Grieving family members of local aunt Laurie Shelton confirmed Monday that the 48-year-old woman's unexpected death had caused a major breach in their gossip pipeline, suddenly disrupting access to the latest dirt on all their relatives. “Since Aunt Laurie passed, news about how Stephanie’s new boyfriend can’t hold down a job and updates on Uncle Jeff’s gambling habit have slowed to a trickle,” said Shelton’s niece Arielle, mourning the loss of a woman who for years had reportedly ensured a steady stream of the juiciest tidbits about relatives’ layoffs, unplanned pregnancies, personal bankruptcies, and misdemeanor shoplifting charges. “All the best gossip flowed through her, and now she’s gone. For all I know, the twins in North Carolina could have been caught smoking pot, Grandma could be back together with Leon, and Uncle Mike could be considering a vasectomy. It’s a devastating loss for the whole family.” Several in the family expressed hope that, for the time being, a sufficient supply of idle chatter could be rerouted through Cousin Staci to meet their immediate needs.

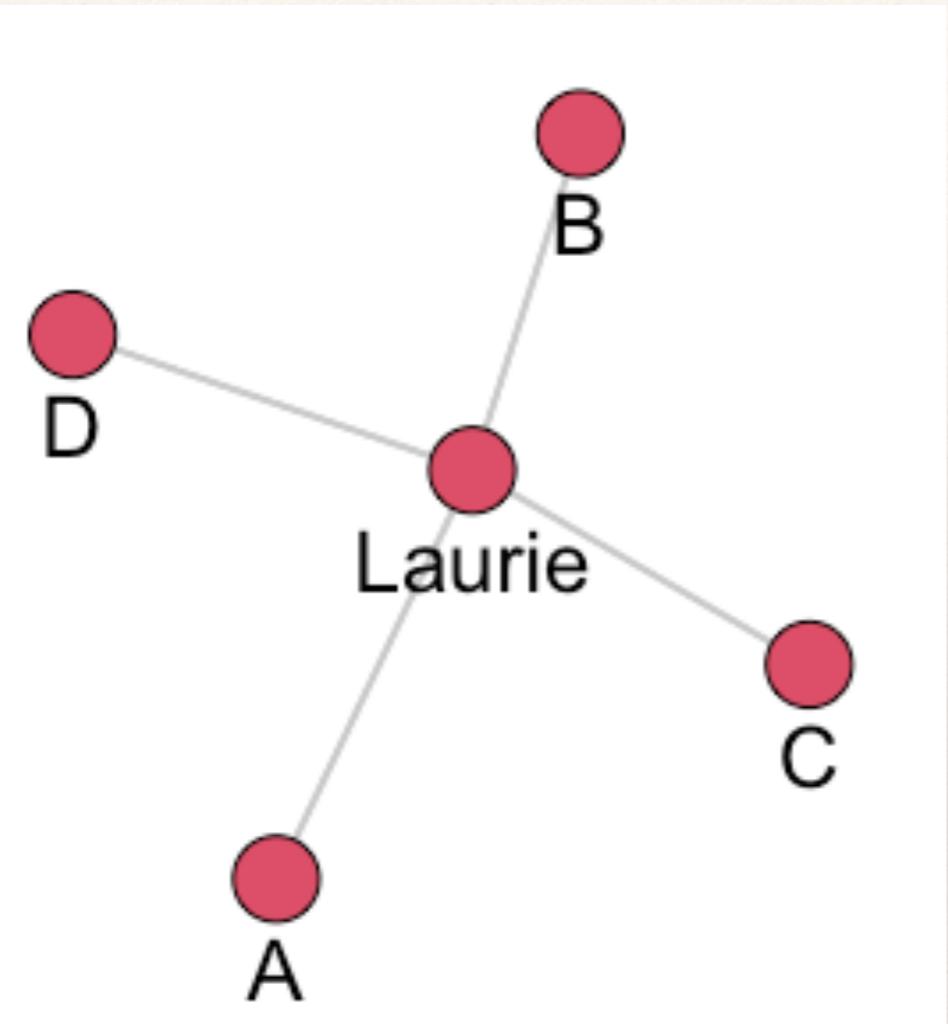
## **Sudden Death Of Aunt Creates Rupture In Family Gossip Pipeline**

**The Shelton family experienced a network intervention**

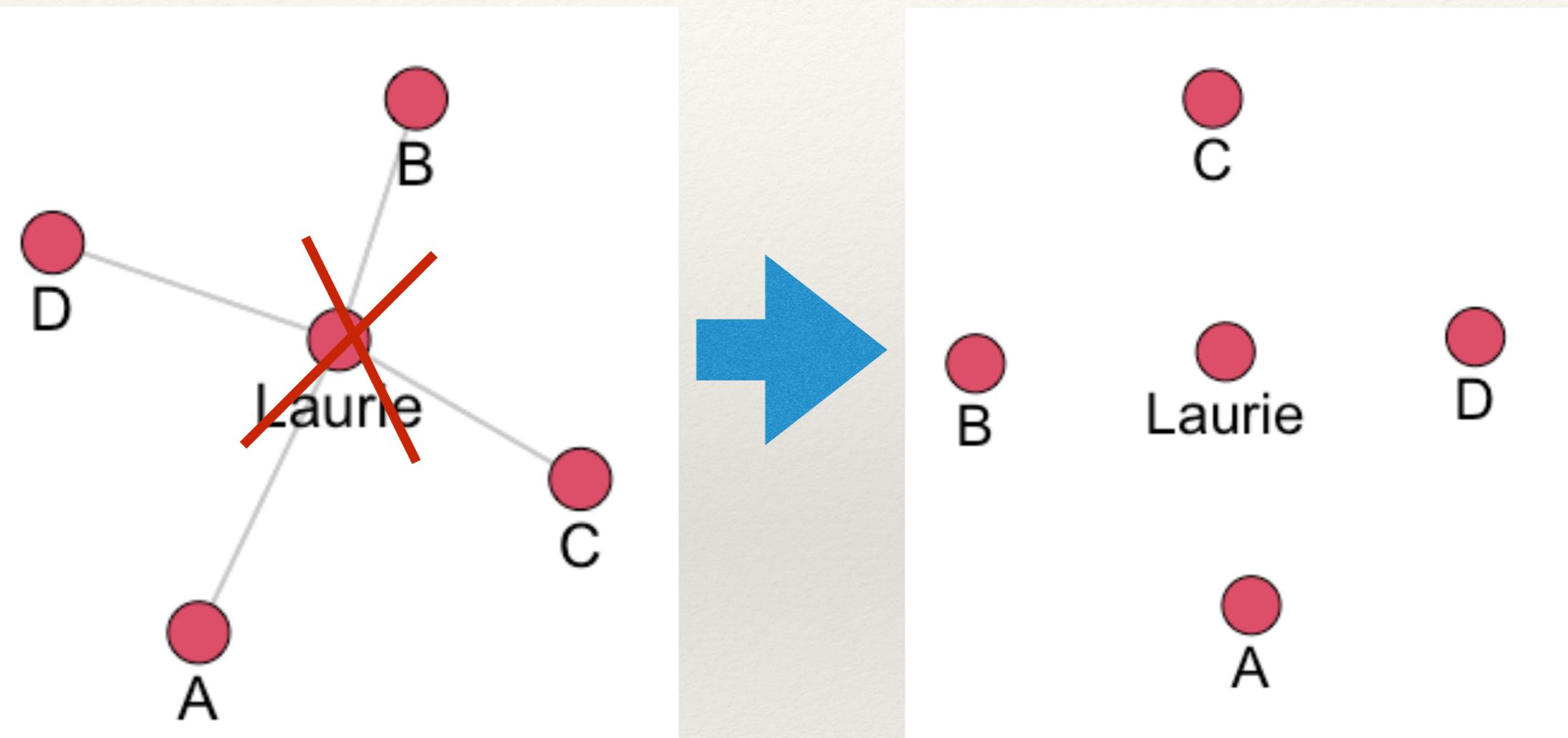
**(A change in the network)**

VIRGINIA BEACH, VA—Grieving family members of local aunt Laurie Shelton confirmed Monday that the 48-year-old woman's unexpected death had caused a major breach in their gossip pipeline, suddenly disrupting access to the latest dirt on all their relatives. “Since Aunt Laurie passed, news about how Stephanie’s new boyfriend can’t hold down a job and updates on Uncle Jeff’s gambling habit have slowed to a trickle,” said Shelton’s niece Arielle, mourning the loss of a woman who for years had reportedly ensured a steady stream of the juiciest tidbits about relatives’ layoffs, unplanned pregnancies, personal bankruptcies, and misdemeanor shoplifting charges. “All the best gossip flowed through her, and now she’s gone. For all I know, the twins in North Carolina could have been caught smoking pot, Grandma could be back together with Leon, and Uncle Mike could be considering a vasectomy. It’s a devastating loss for the whole family.” Several in the family expressed hope that, for the time being, a sufficient supply of idle chatter could be rerouted through Cousin Staci to meet their immediate needs.

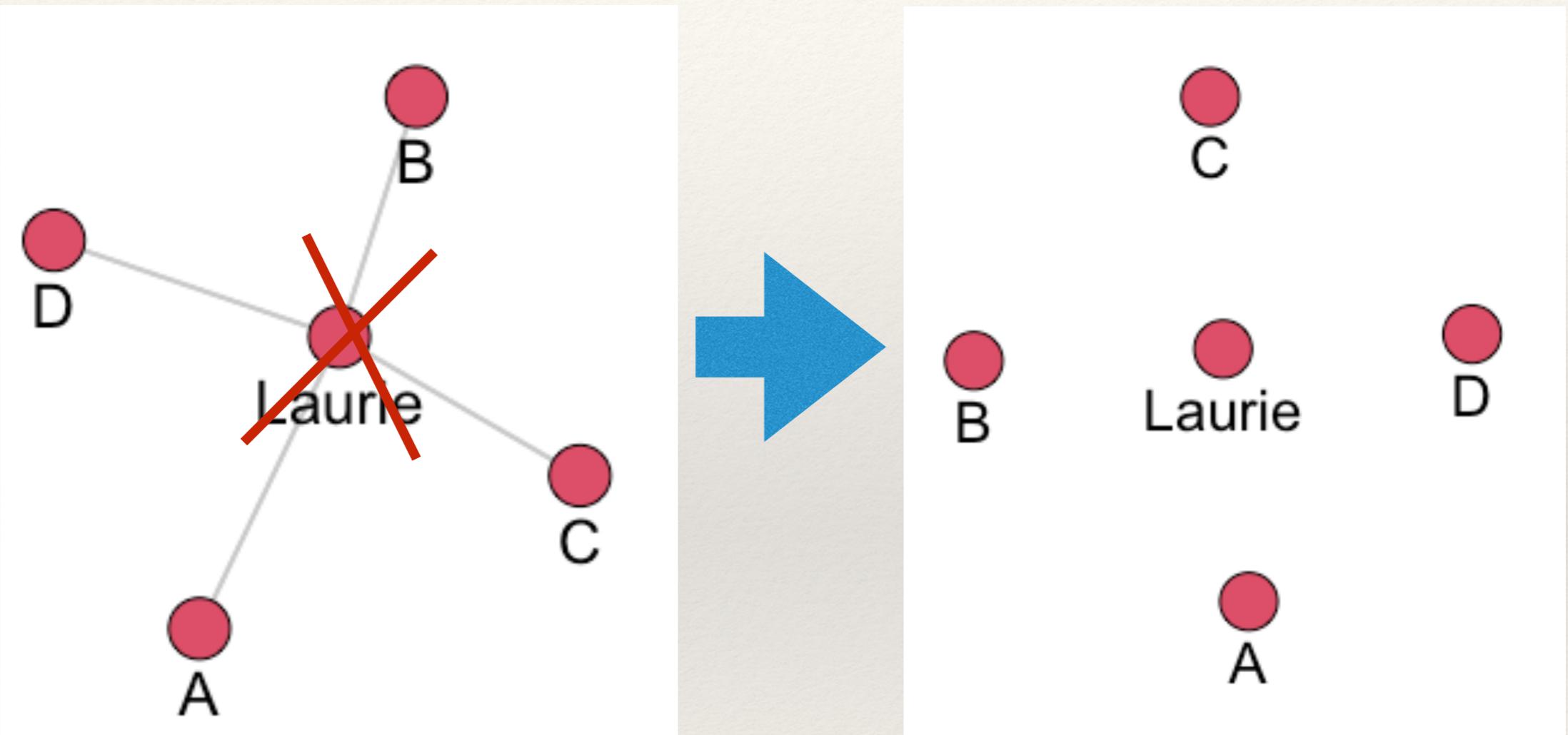
# Sudden Death Of Aunt Creates Rupture In Family Gossip Pipeline



## Sudden Death Of Aunt Creates Rupture In Family Gossip Pipeline



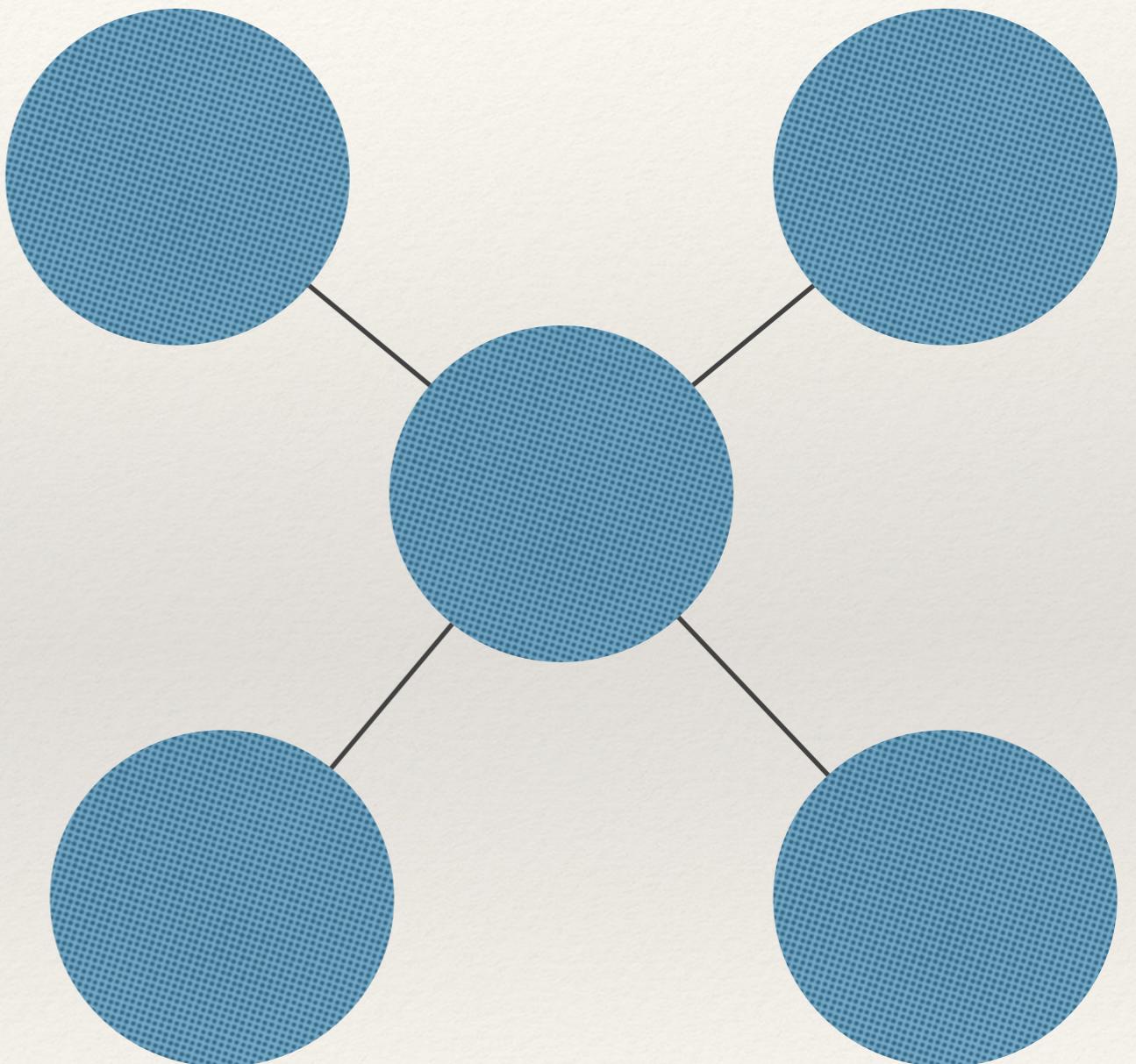
## Sudden Death Of Aunt Creates Rupture In Family Gossip Pipeline



*The Family Gossip Pipeline is vulnerable*

# Why Networks?: Networks Matter!

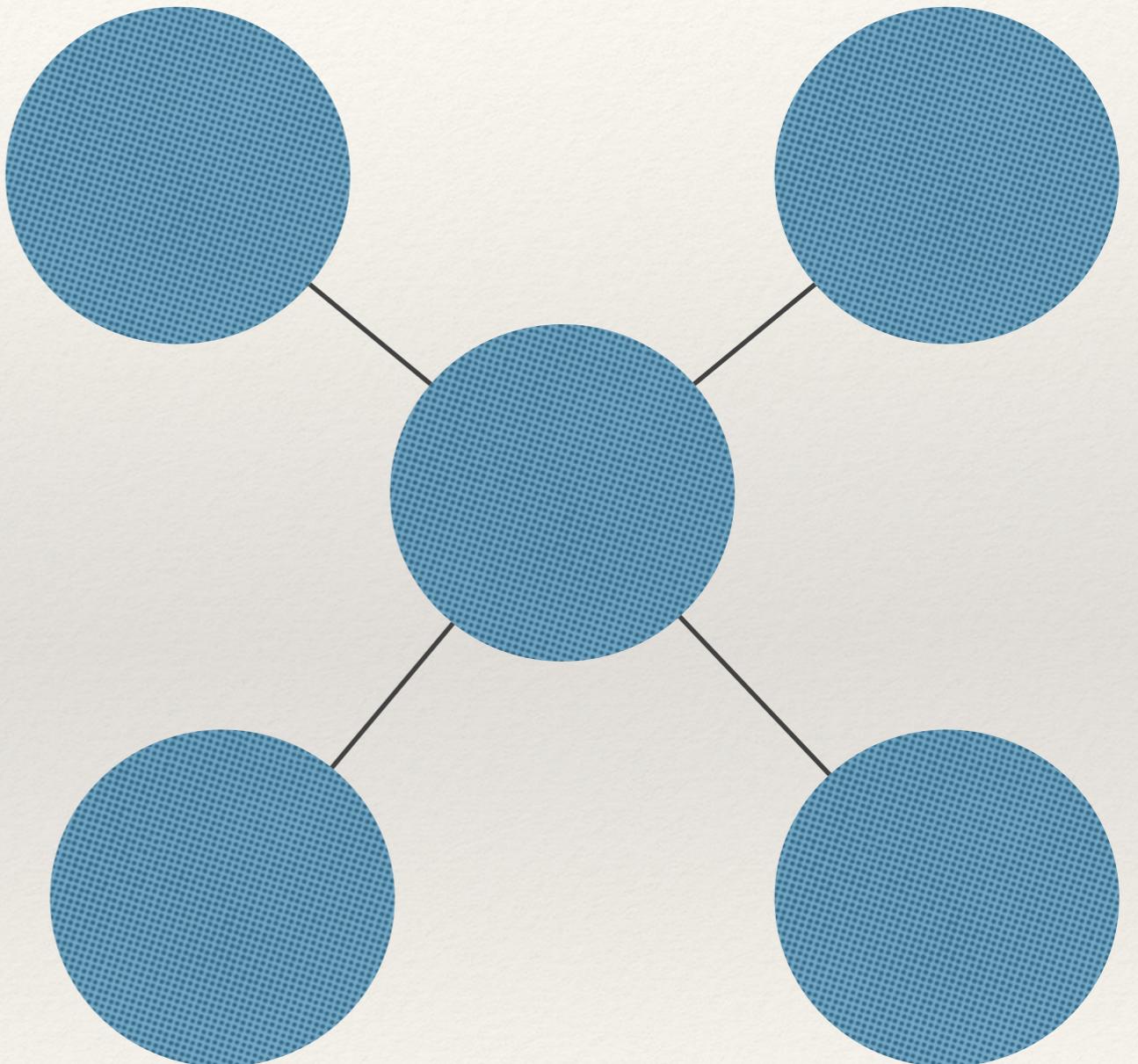
Just as gossip spreads through a network, so may drugs, money, people...



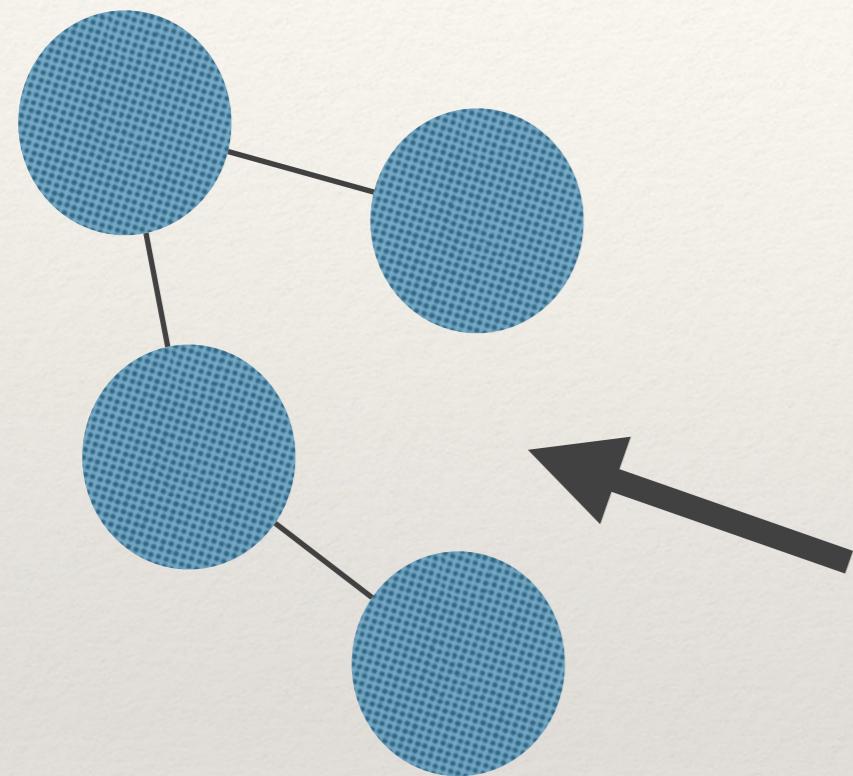
# Why Networks?: Networks Matter!

Just as gossip spreads through a network, so may drugs, money, people...

Seemingly independent operations may be connected



# Example: Criminal Organization in Italy



Local police had been monitoring criminal behavior in separate areas

# Example: Criminal Organization in Italy



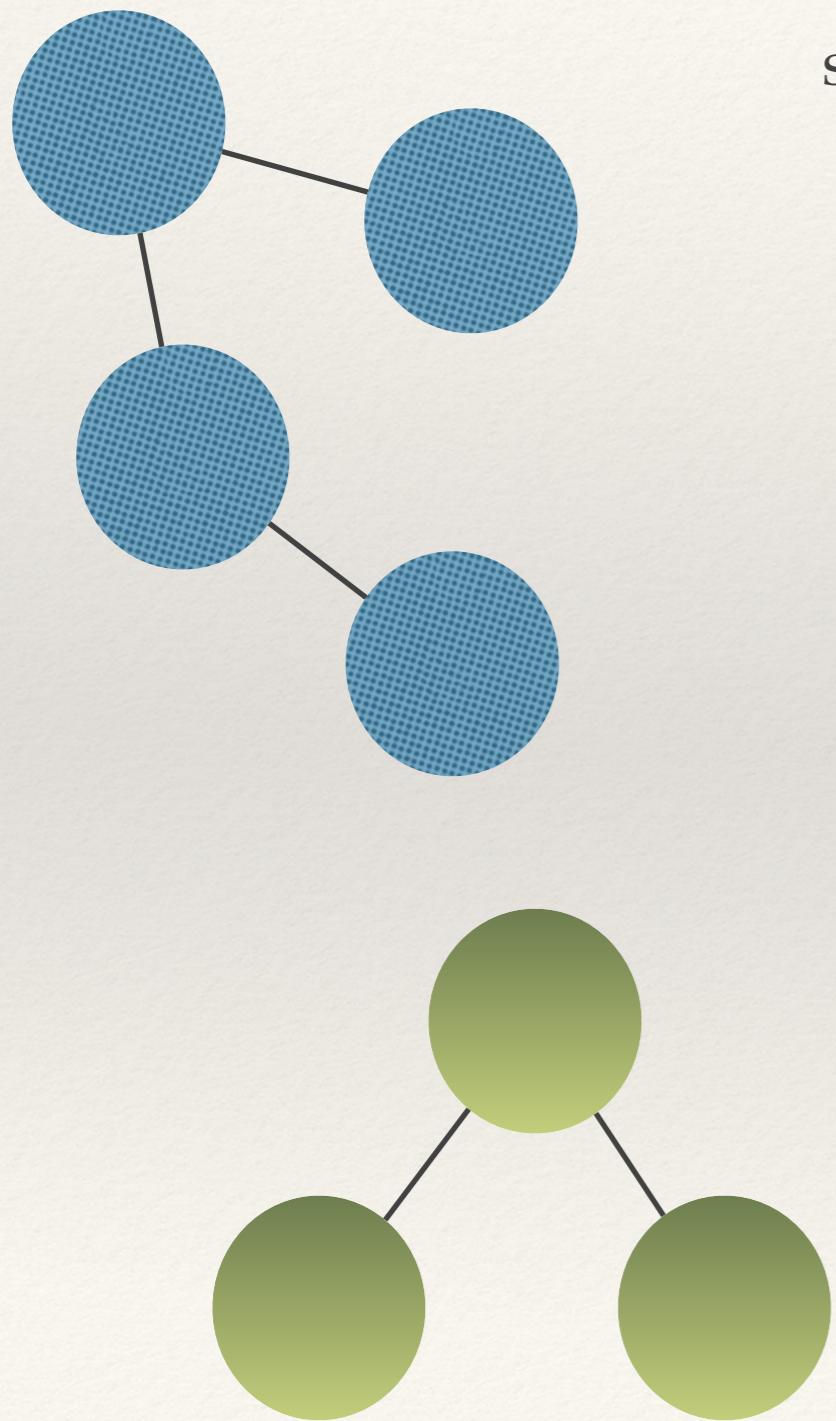
# Example: Criminal Organization in Italy



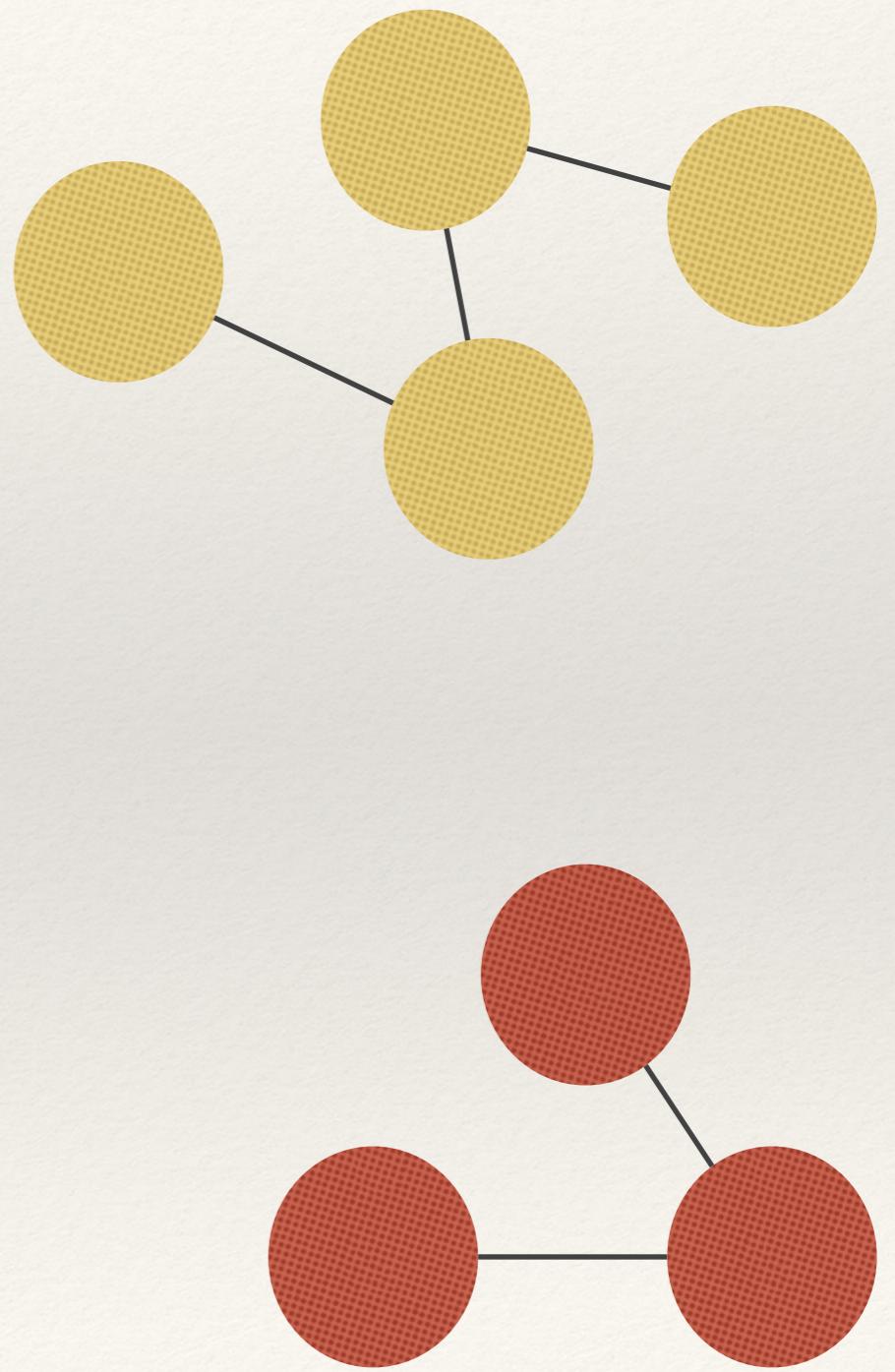
# Example: Criminal Organization in Italy



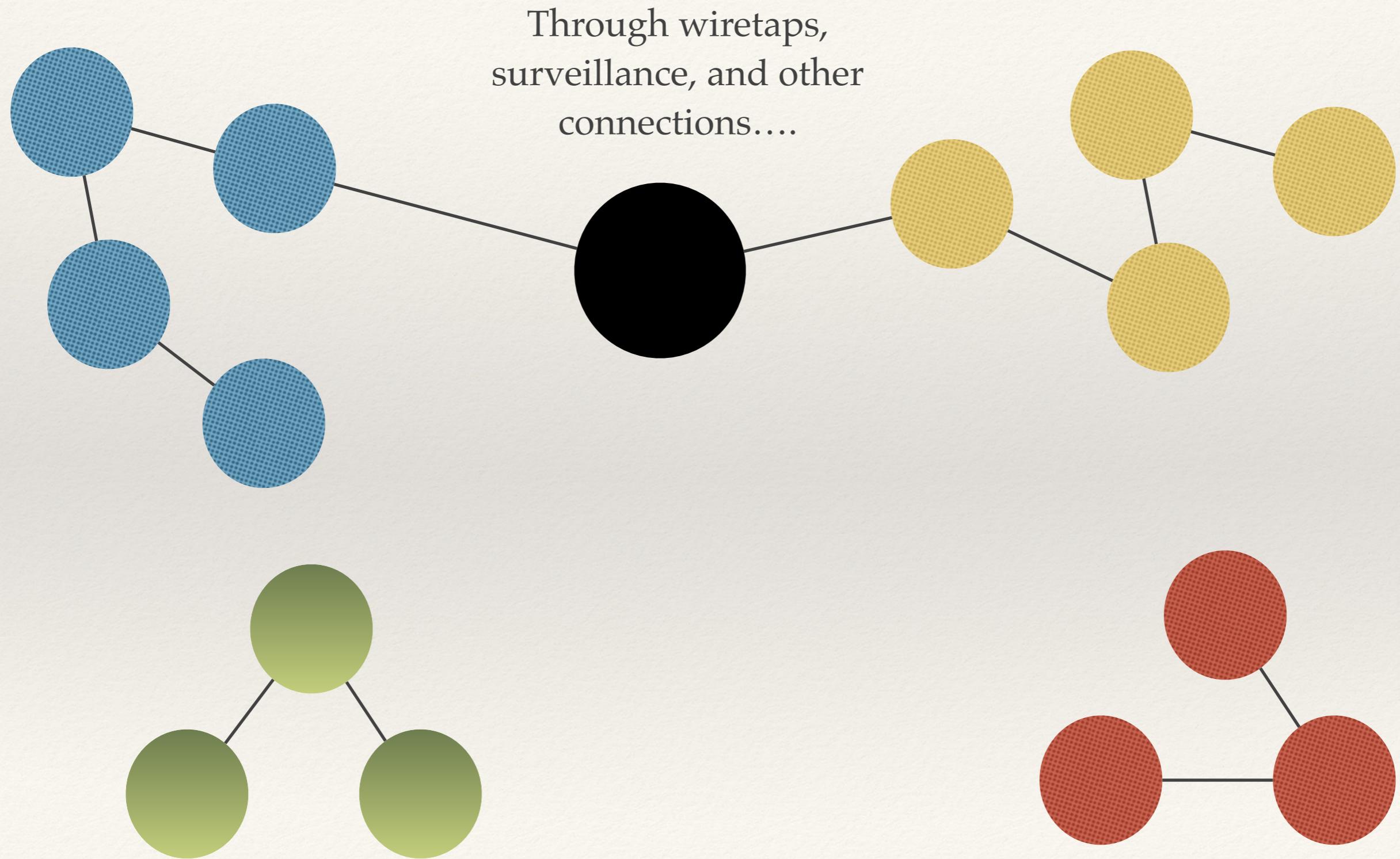
# Example: Criminal Organization in Italy



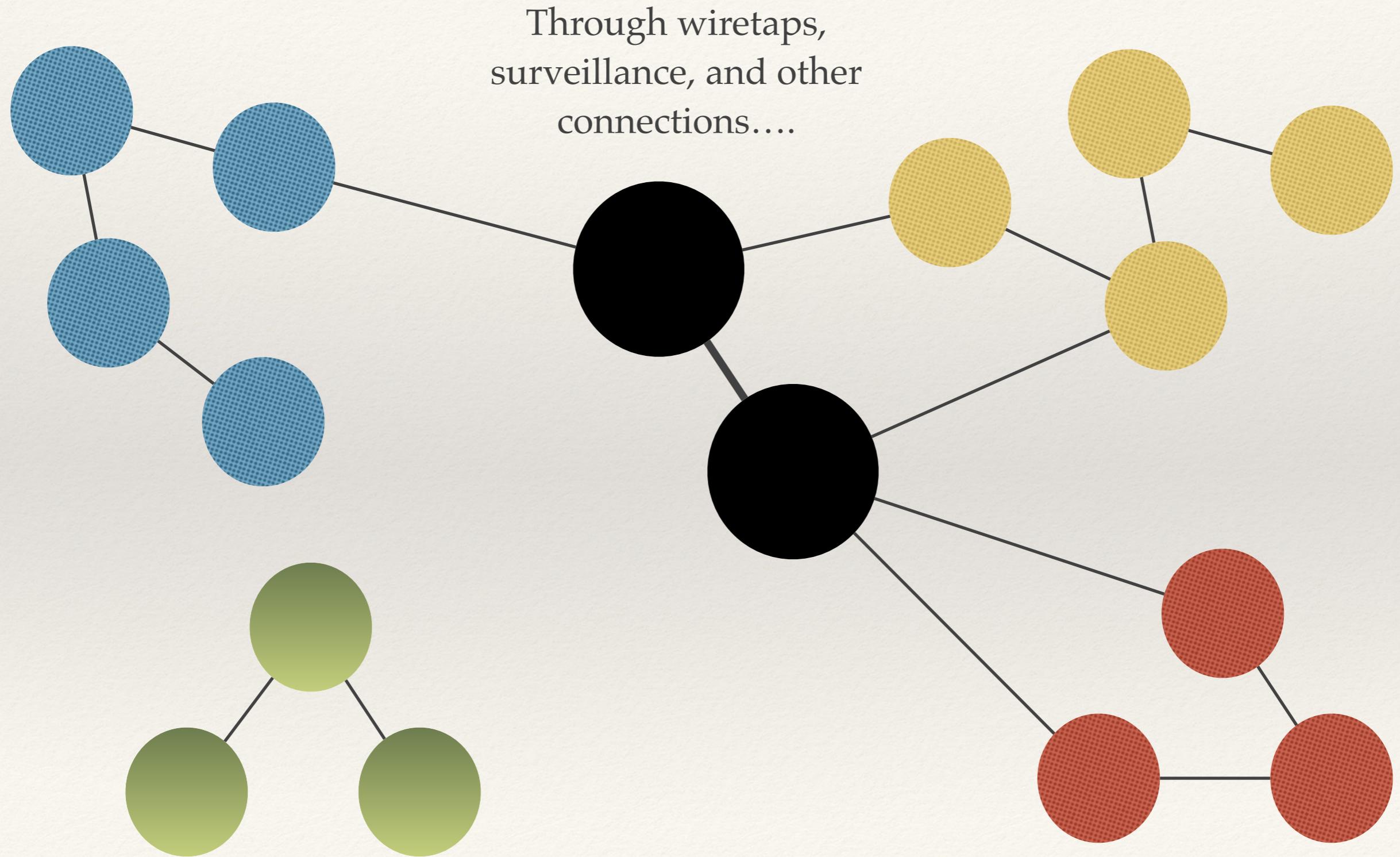
Through wiretaps,  
surveillance, and other  
connections....



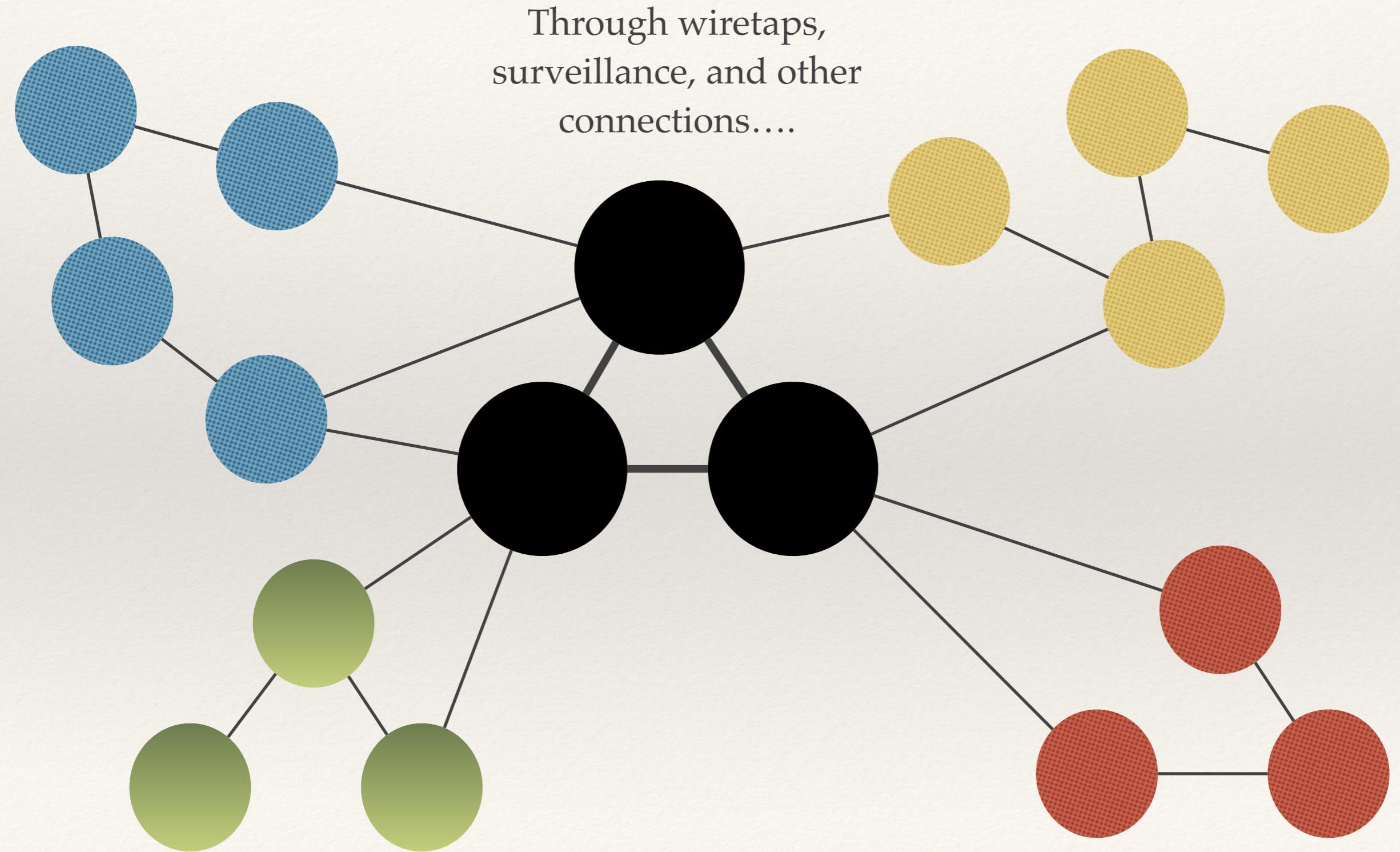
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# Example: Criminal Organization in Italy



# Example: Criminal Organization in Italy



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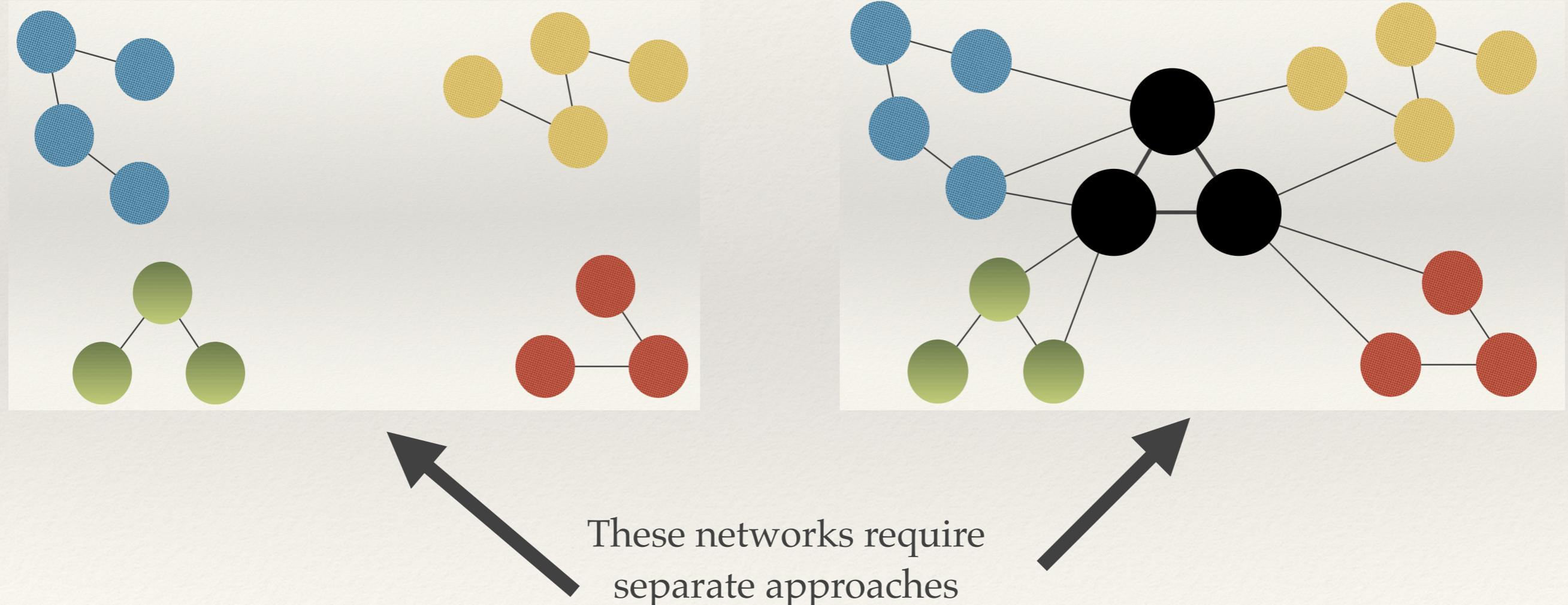
# Example: Criminal Organization in Italy

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The **structure of the network**  
influenced the intervention

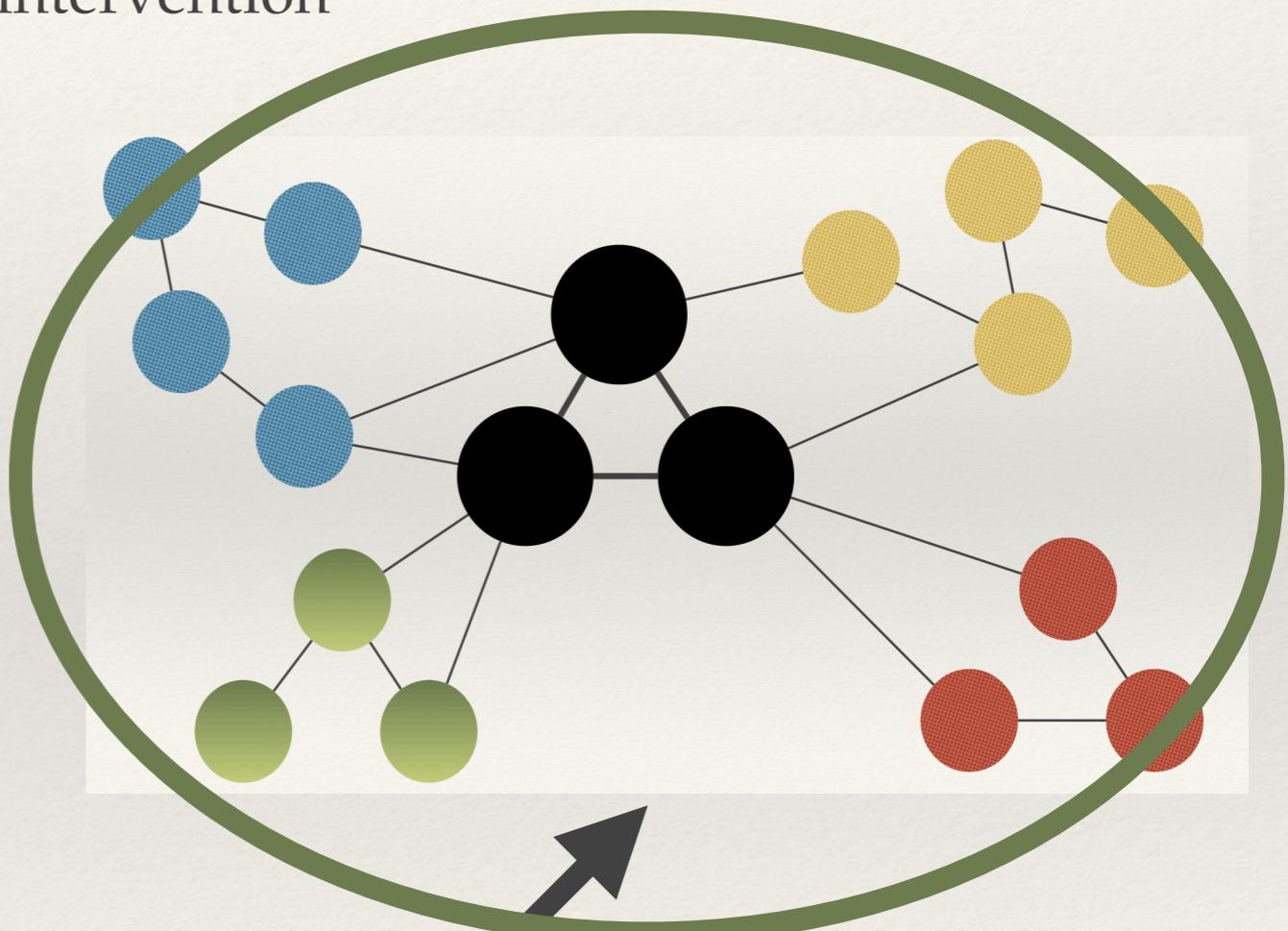
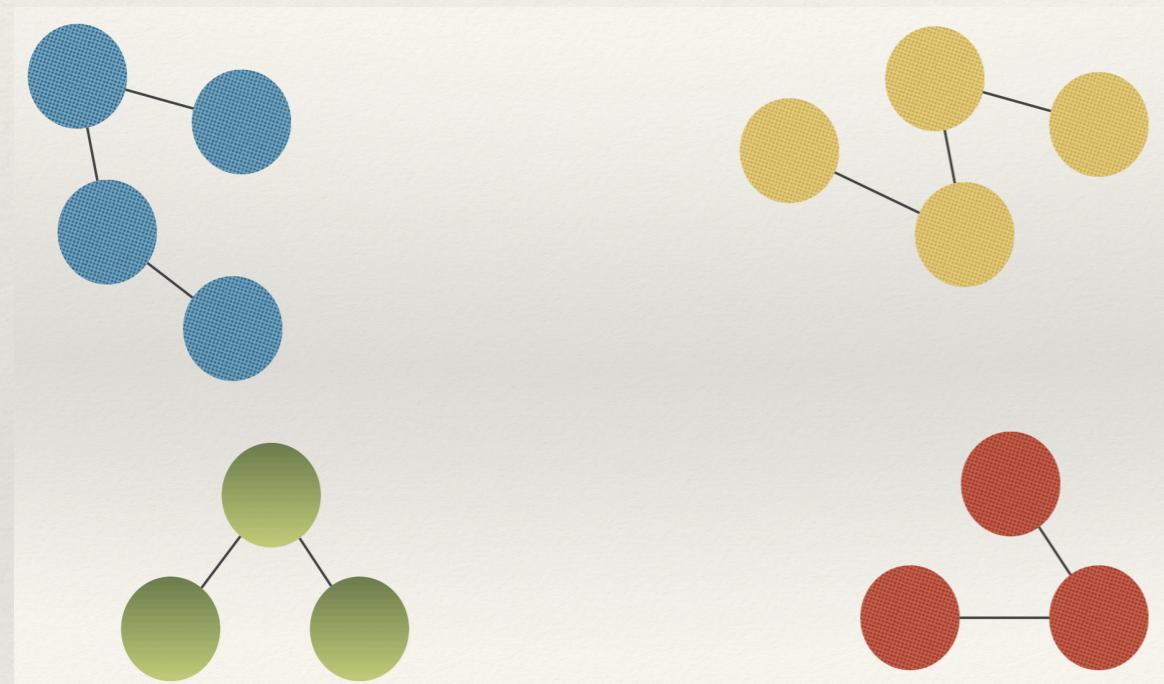
# Example: Criminal Organization in Italy

The structure of the network  
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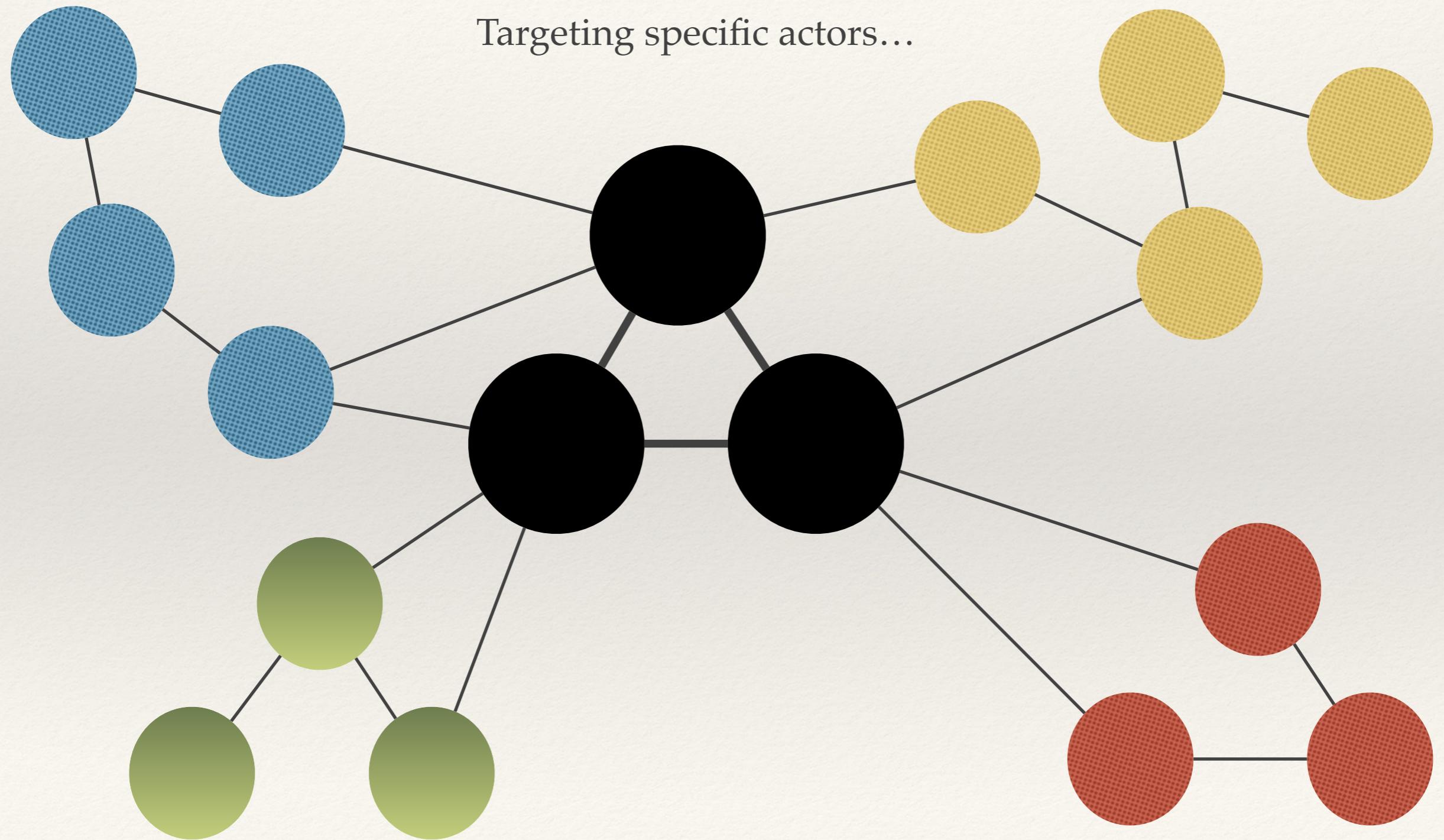
# Example: Criminal Organization in Italy

The structure of the network  
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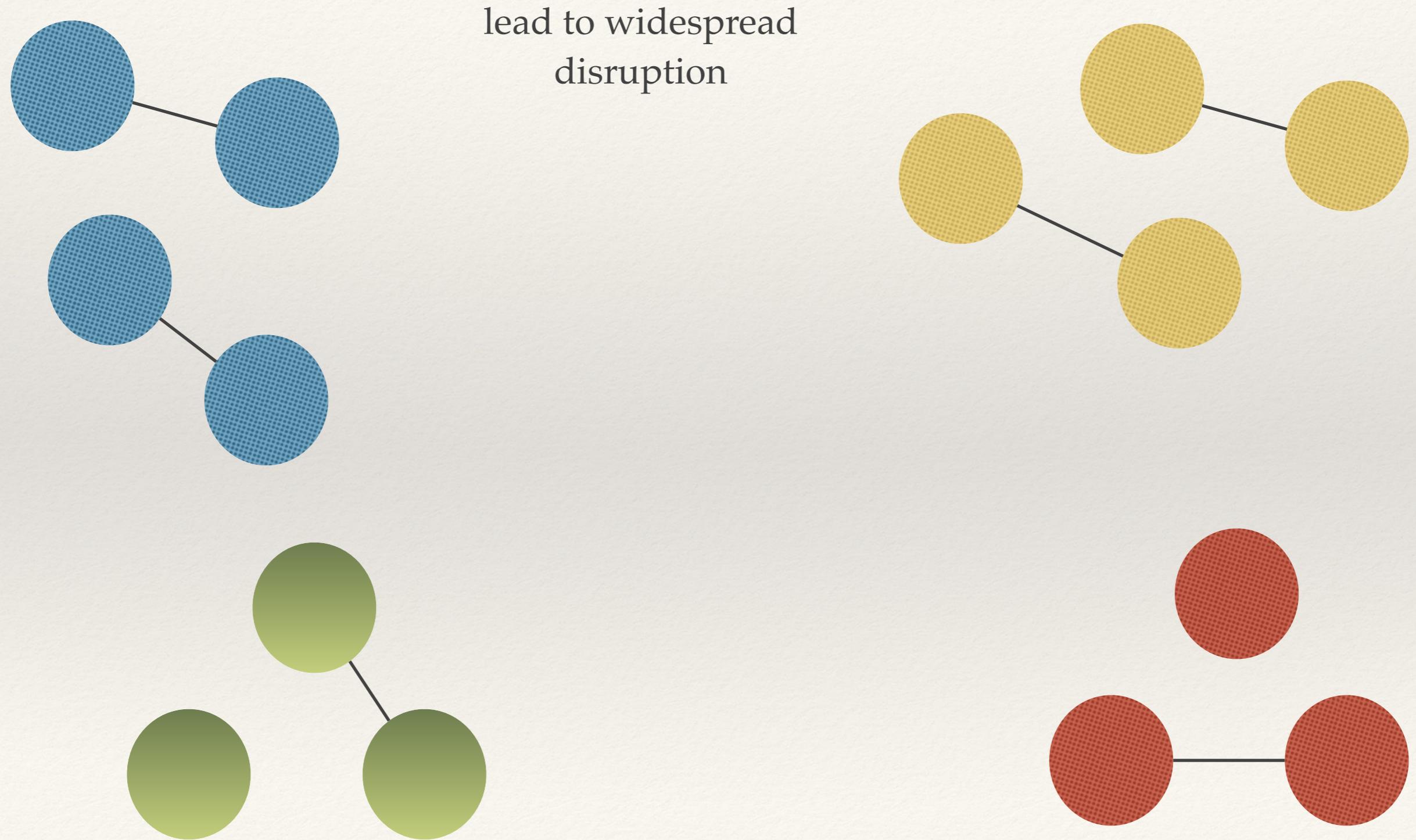


These networks require  
separate approaches

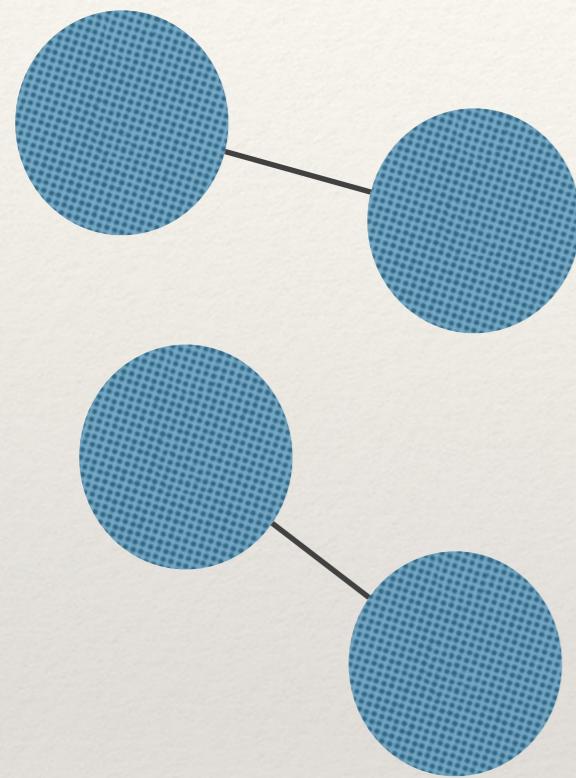
# Example: Criminal Organization in Italy



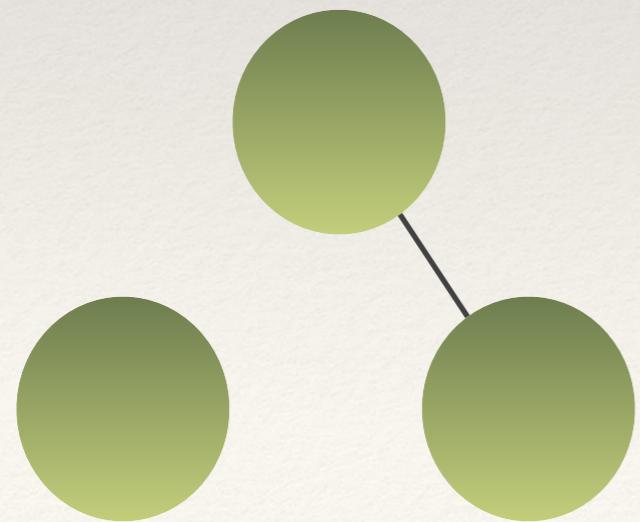
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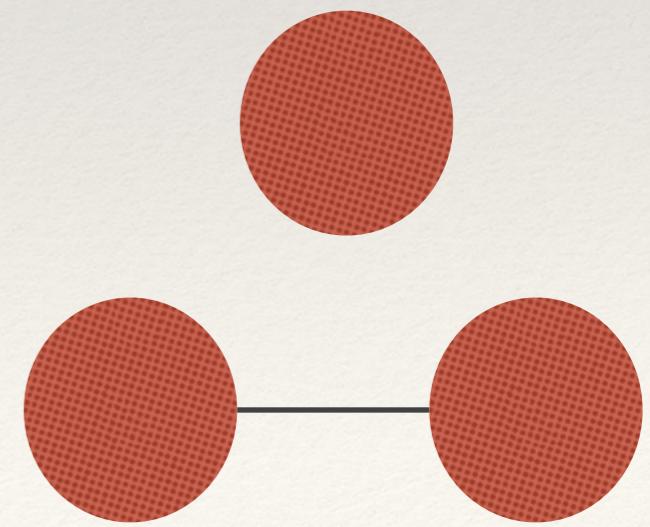
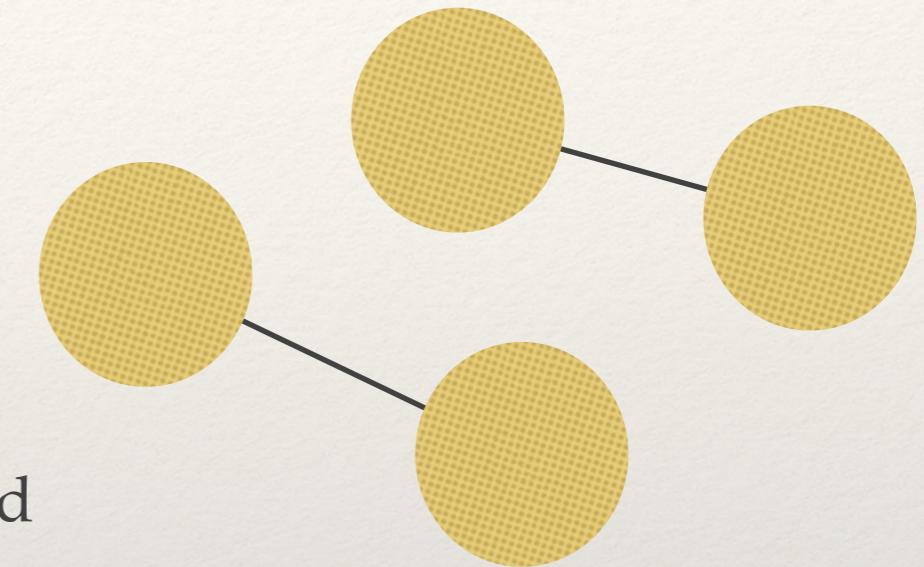
# Example: Criminal Organization in Italy



Groups were disconnected



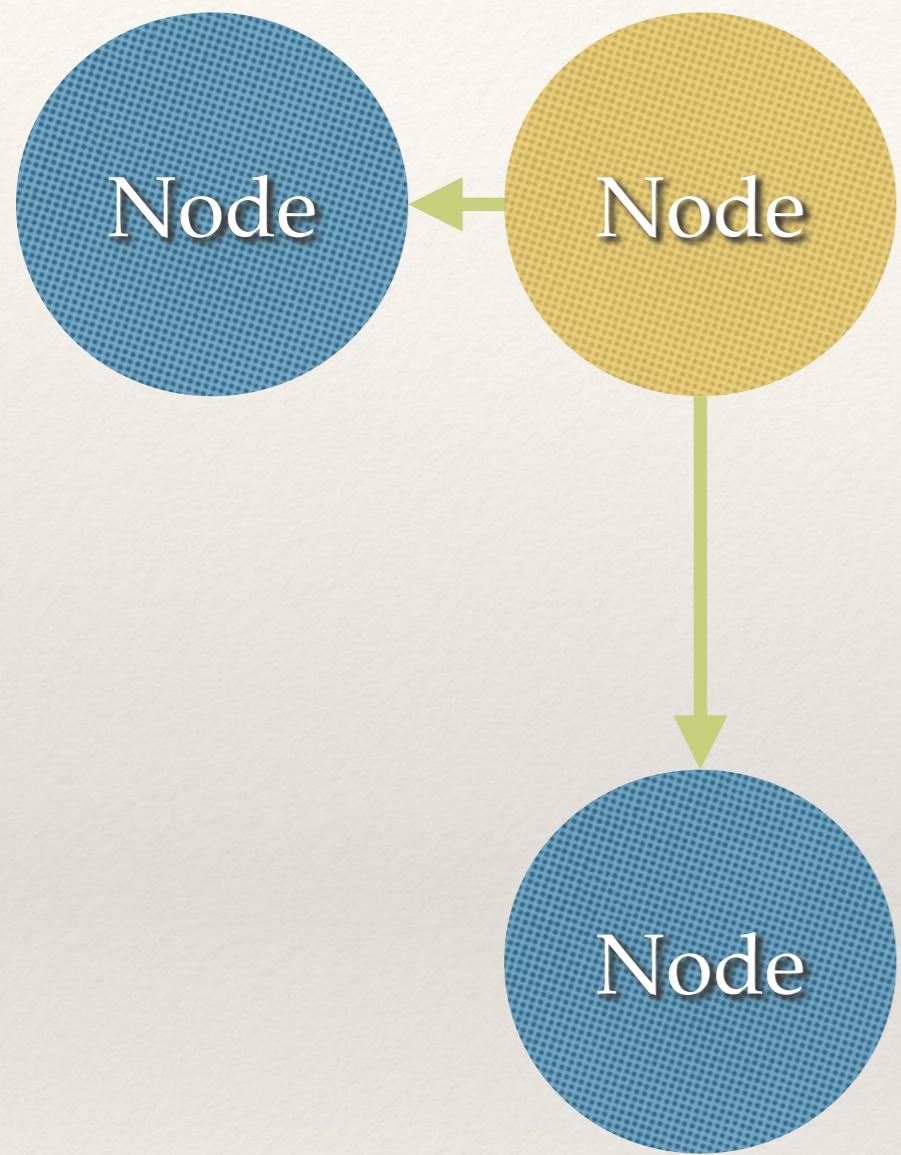
BUT, local activity was also impacted



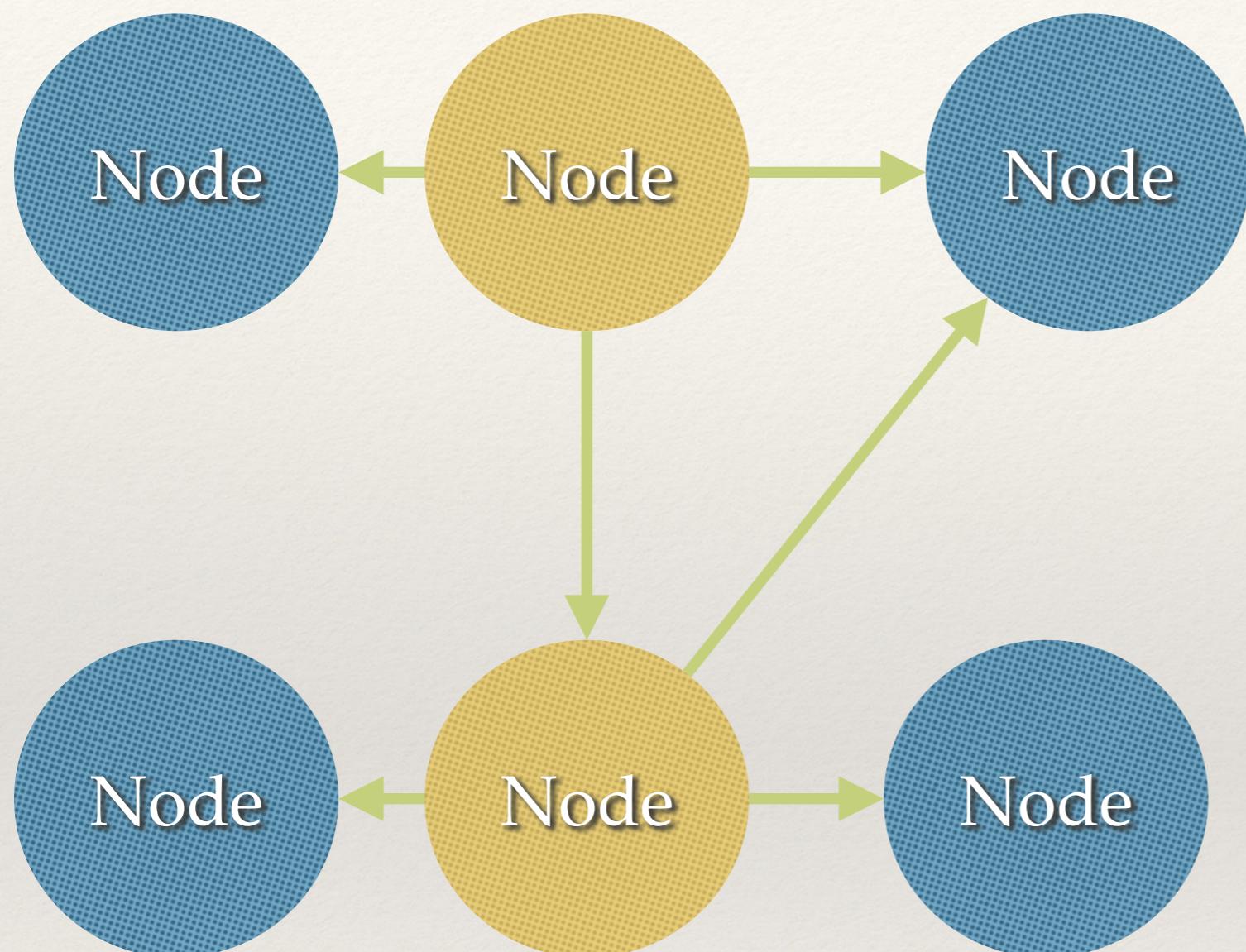
# Addiction as a Network Phenomenon

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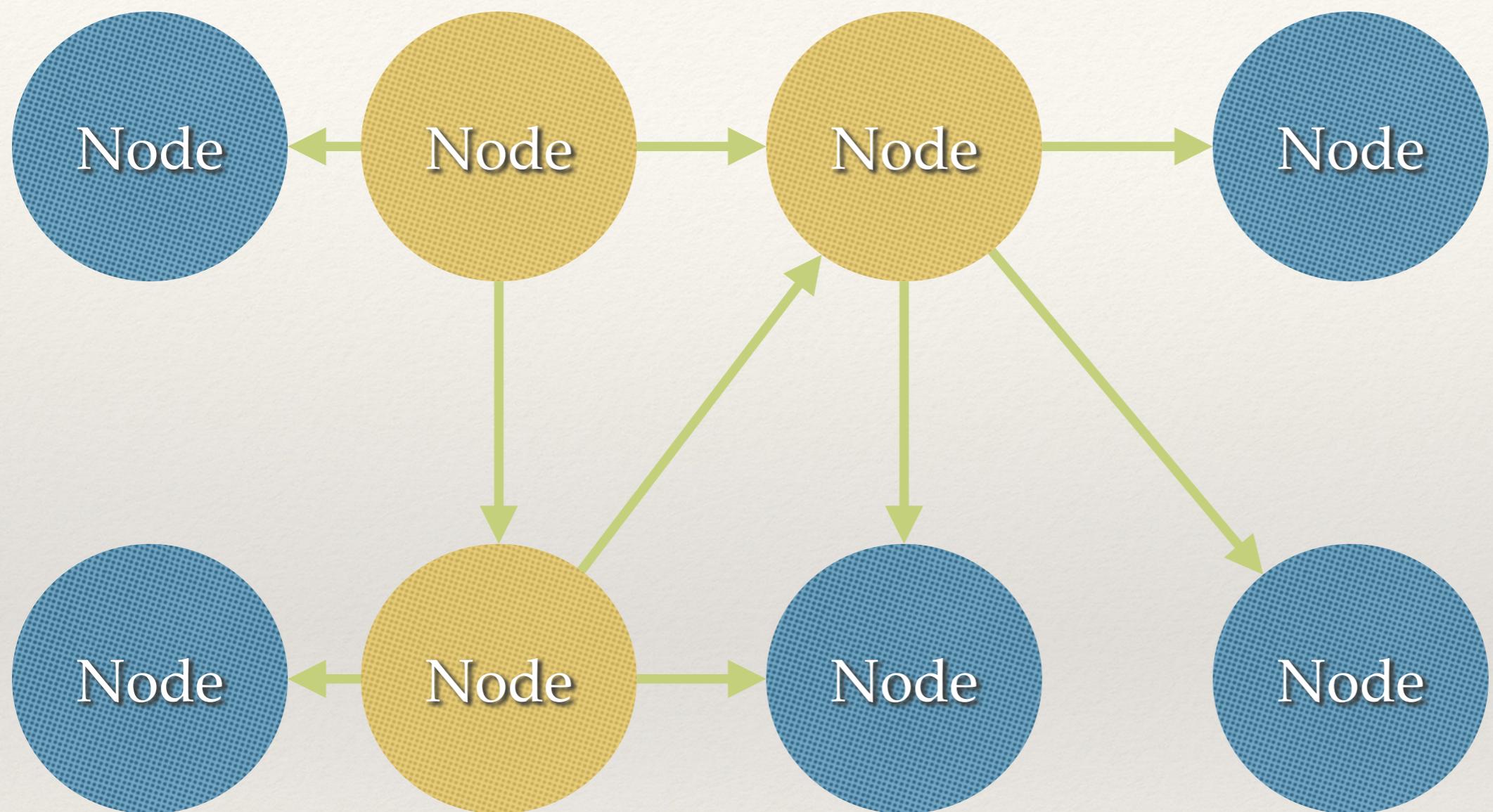
- ❖ How did the widespread abuse of prescription drugs in the United States occur?
  - ❖ Were more people in pain?
  - ❖ Were doctors actively seeking new patients?

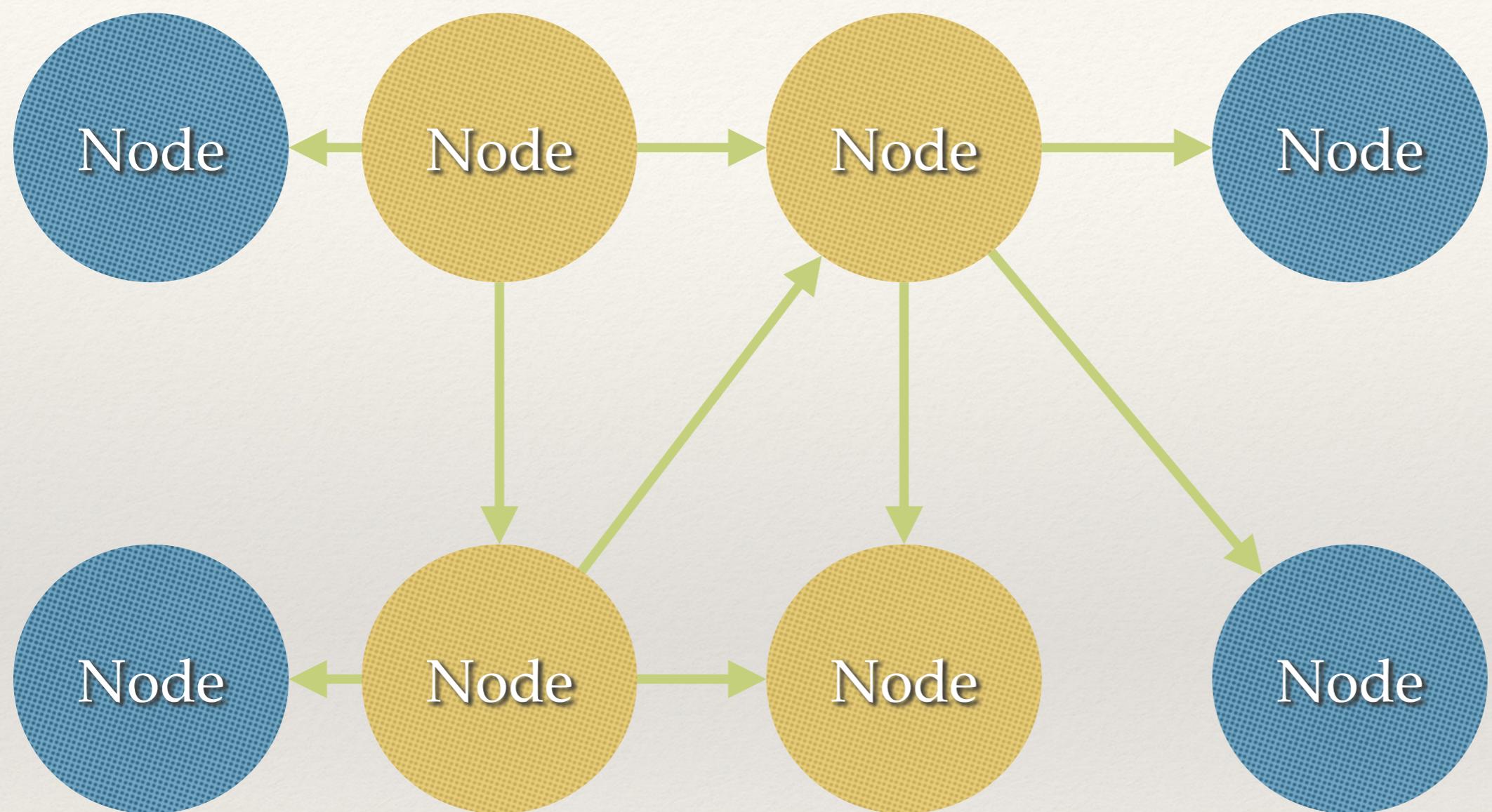


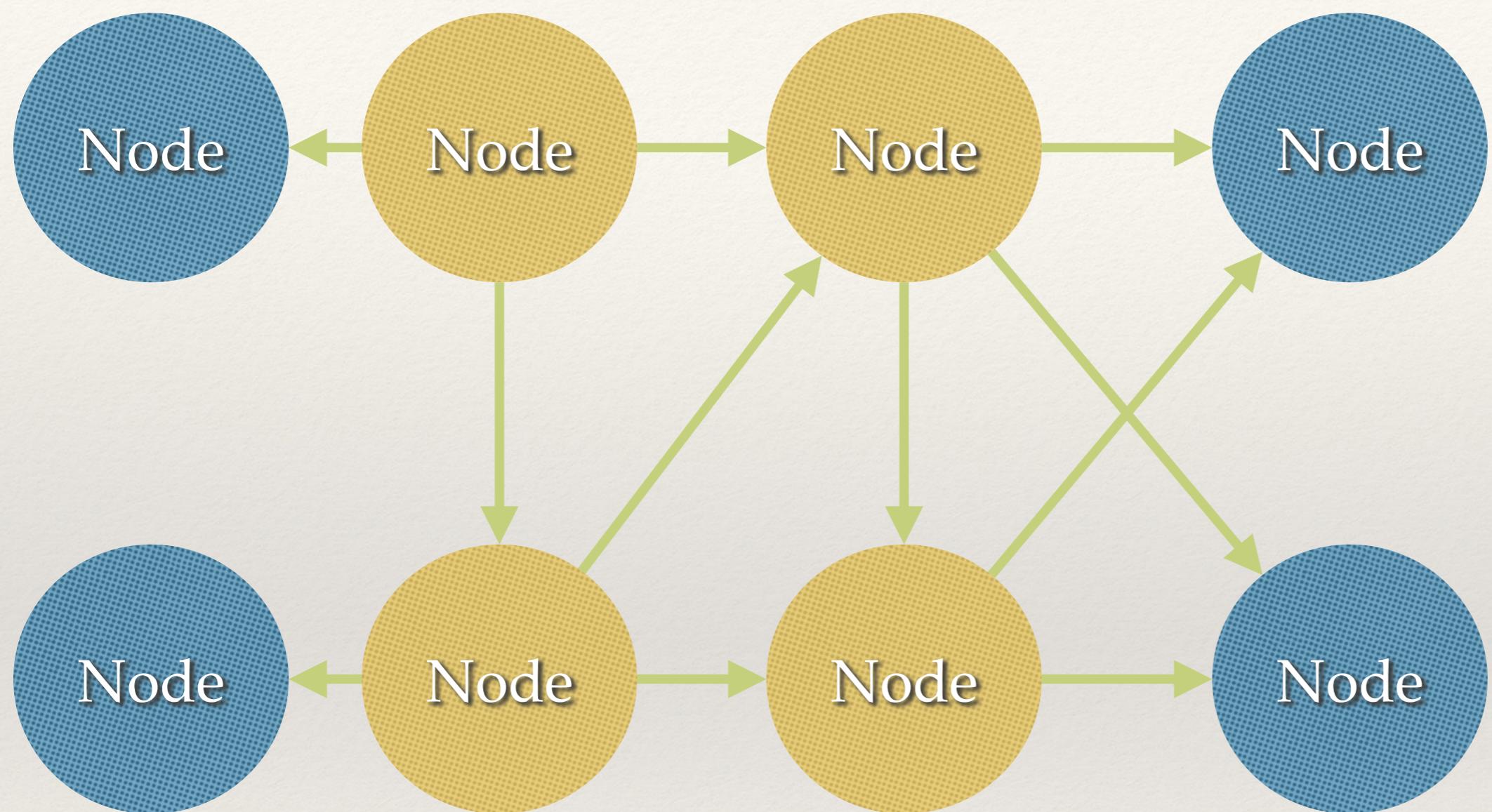
Information about opioids diffused through workplaces, friendships, but also through social media communities

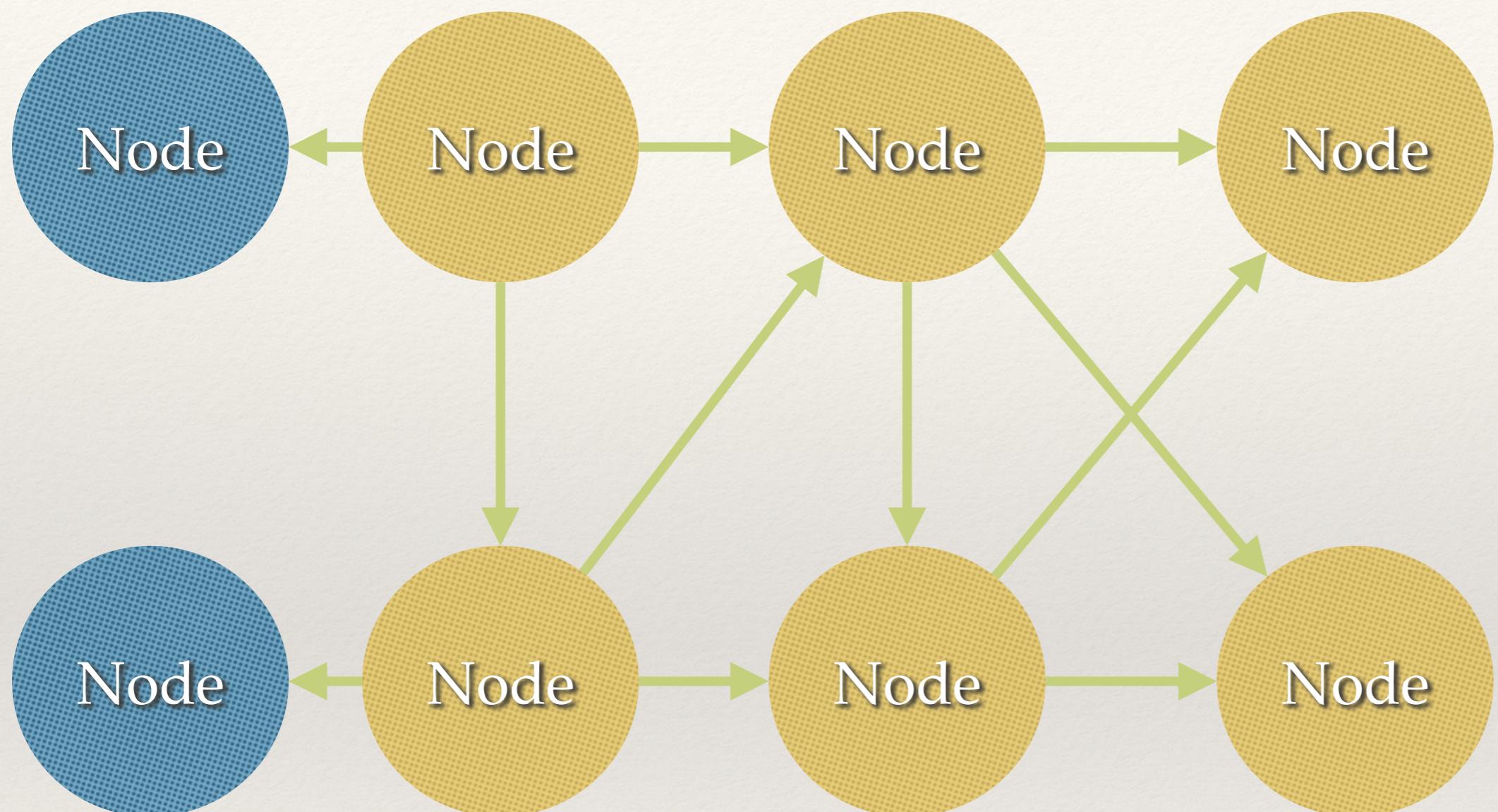


Individuals exposed to this information sought out prescriptions and diffused that information to others

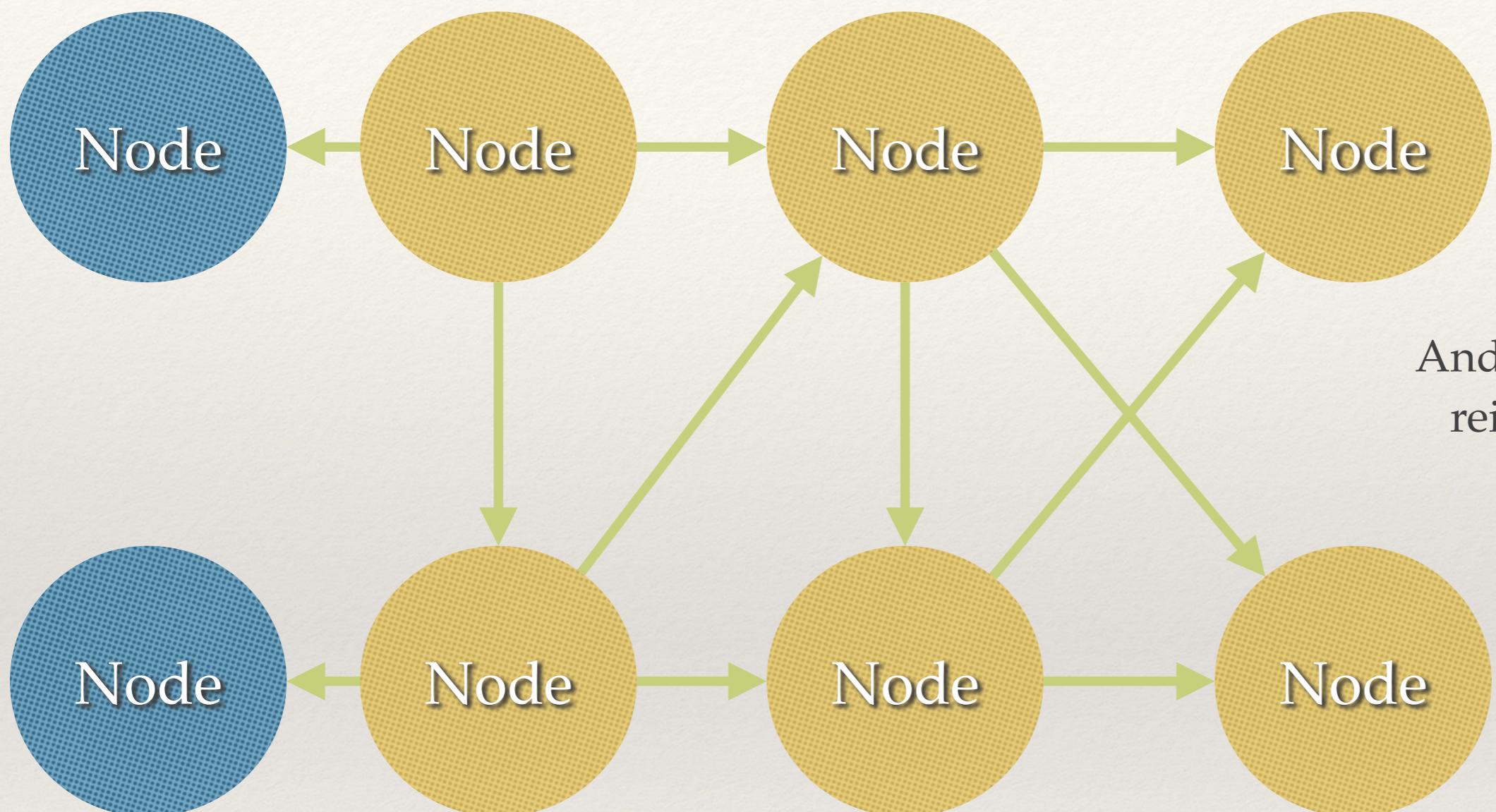








Widespread knowledge  
about the access to opioids  
spread through networks



Widespread knowledge  
about the access to opioids  
spread through networks

And relationships  
reinforced this  
behavior

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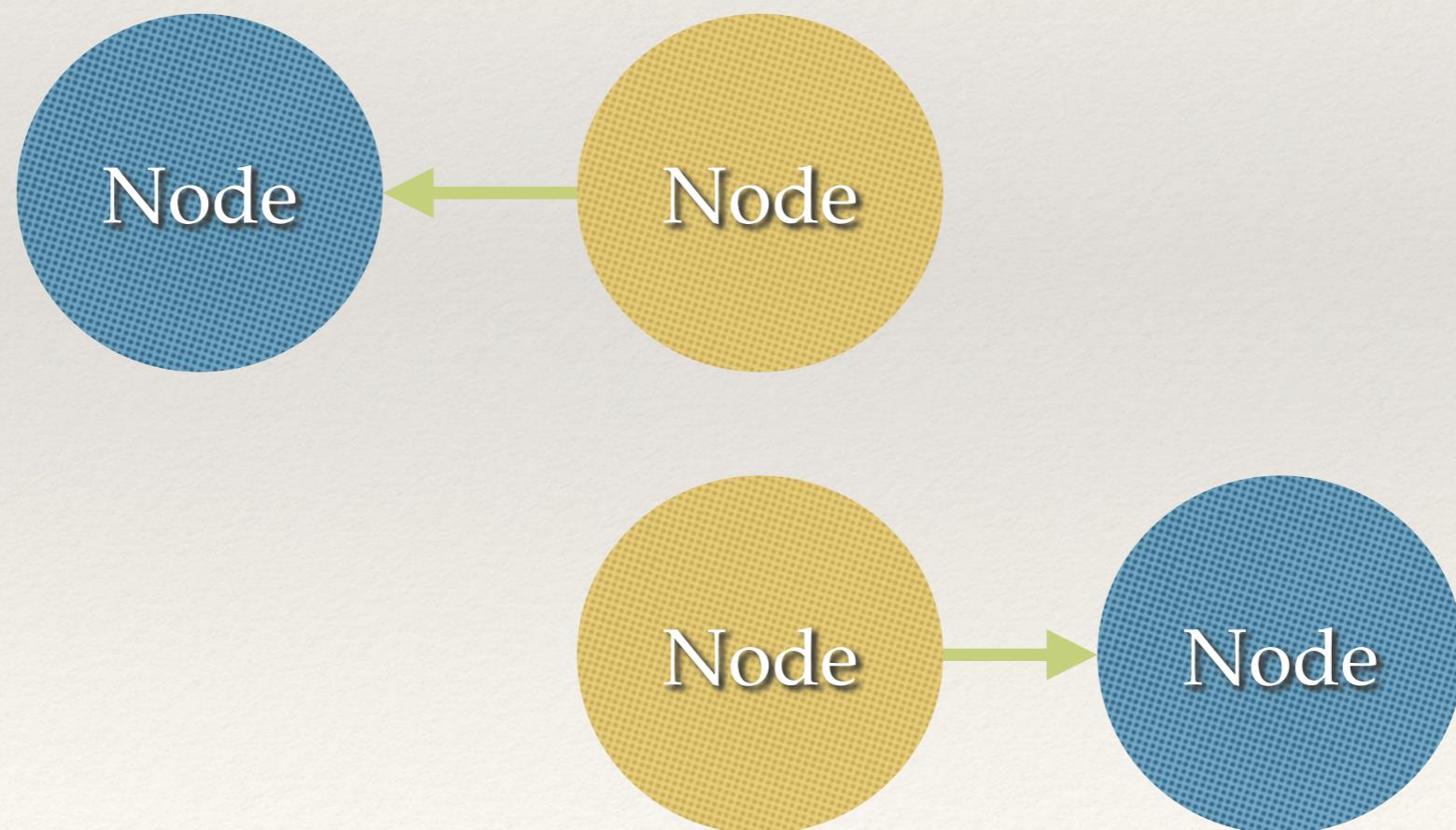
# Example: Focused Deterrence

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Focused deterrence is built on  
the idea that information can  
be diffused through networks

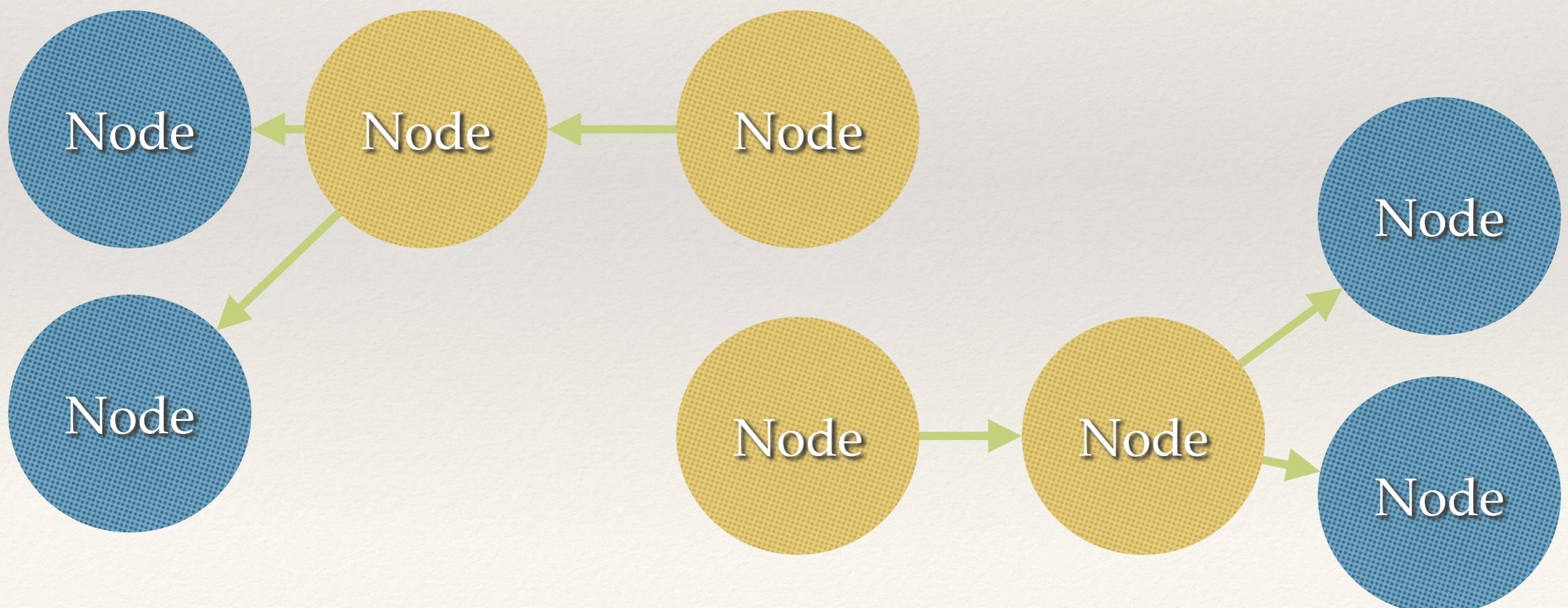
# Example: Focused Deterrence

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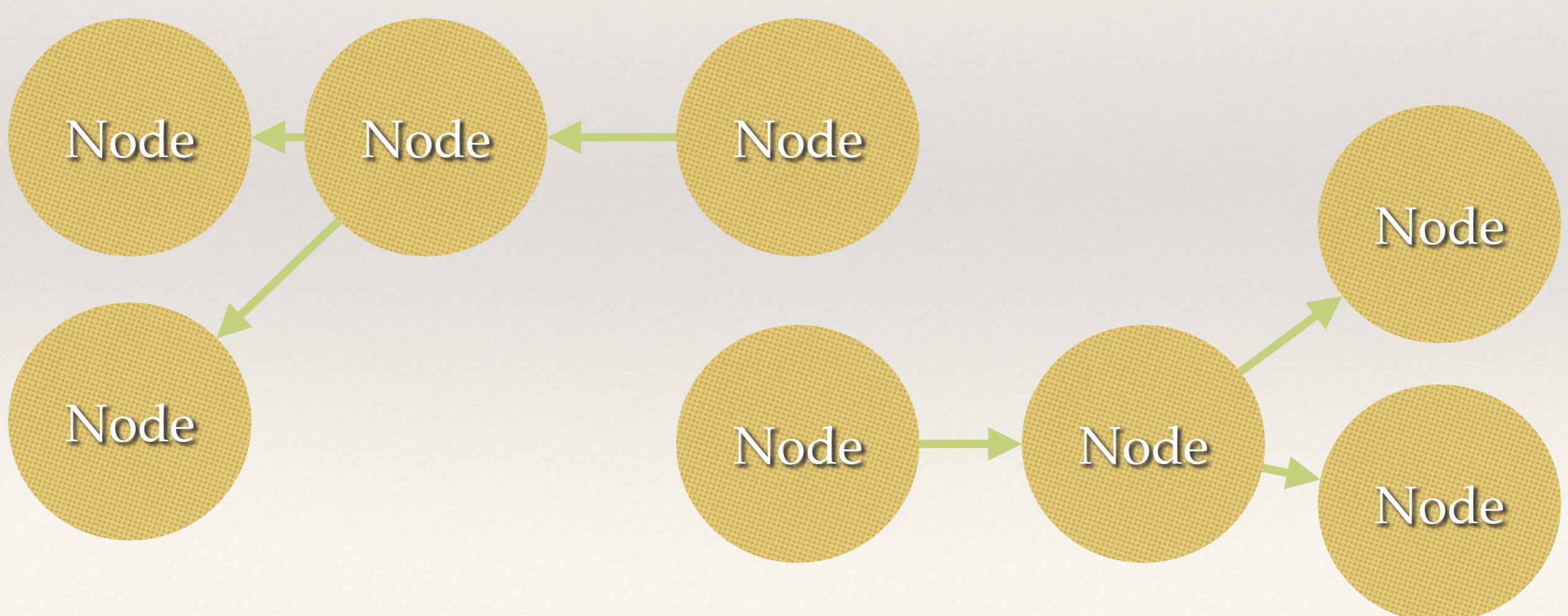


# Example: Focused Deterrence

Nodes spread information  
about a program  
throughout the network



# Example: Focused Deterrence



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# Why Networks Matters

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- ❖ Criminal justice agencies often face situations that involve networks.
- ❖ By leveraging the tools of network analysis, agencies can gain new insights and develop novel approaches and solutions.

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# Network Science Applications

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- ❖ **Youth Justice Workers and Probation:** uncovering hidden links
- ❖ **Law Enforcement:** Targeting influential individuals
- ❖ **Agency Management:** Identify those who may benefit most from intervention
- ❖ **Prisons:** Anticipating potential escalation among conflicting groups
- ❖ **Crime Prevention:** Enhance intelligence gathering, build trust, cooperation, and support from community

I hope I have sparked an interest in  
networks...but what is my stake?

# My Stake

## ASU Charter

“

ASU is a comprehensive public research university, measured not by whom it excludes, but by whom it includes and how they succeed; advancing research and discovery of public value; and assuming fundamental responsibility for the economic, social, cultural and overall health of the communities it serves.

# My Stake

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# Thank you!

# Questions?

(A link to the slides will be sent after our meeting concludes)