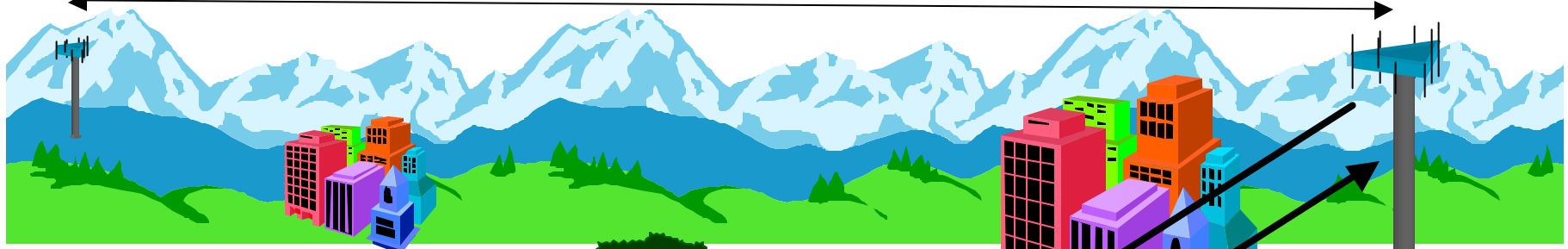


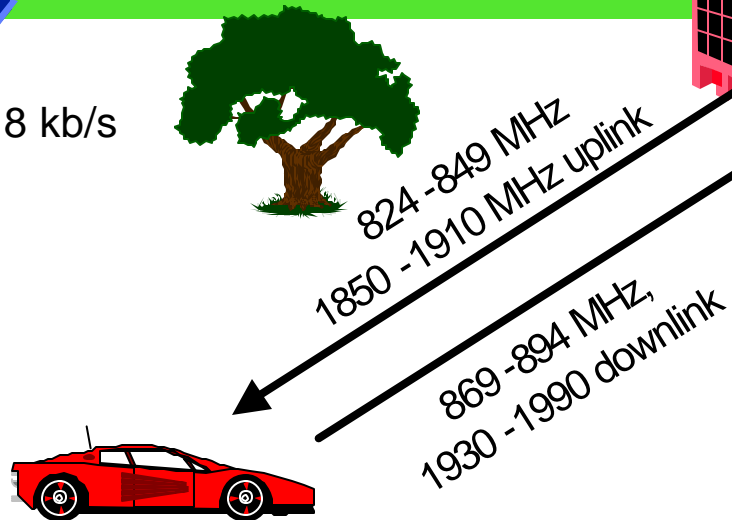
Case 5 – Wide Area Wireless Data Services CDPD, 3G, EDGE, etc.

MacroCell spacing ~5-10 miles at 850 MHz, 3-5 miles at 1900 MHz



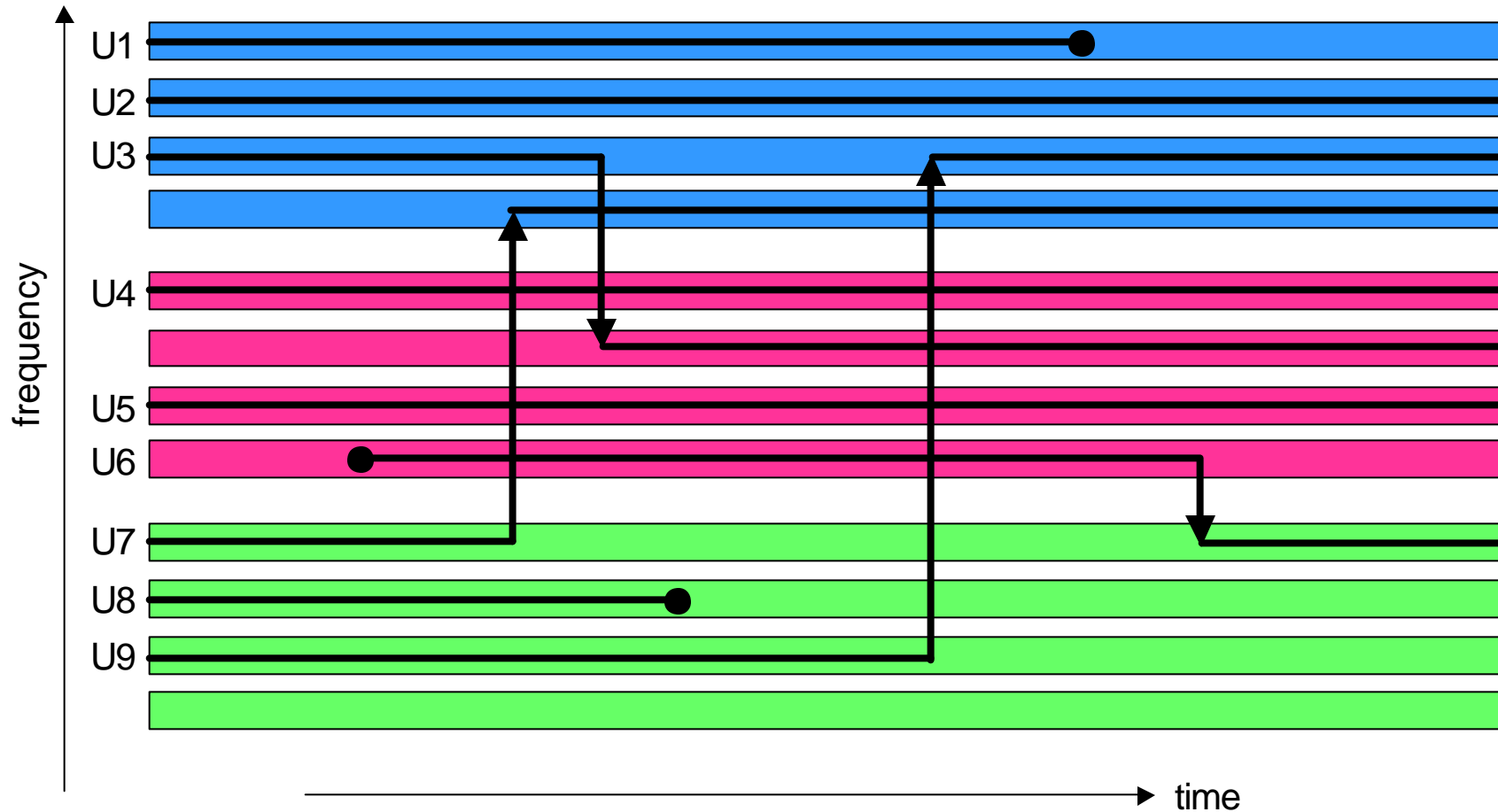
850:
Data over AMPS: ~2.4 – 4.8 kb/s
CDPD up to 19.2 kb/s
IS-136: ~8 kb/s

1900:
EDGE/3G: up to 384 kb/s
4G: 5-10 Mb/s?



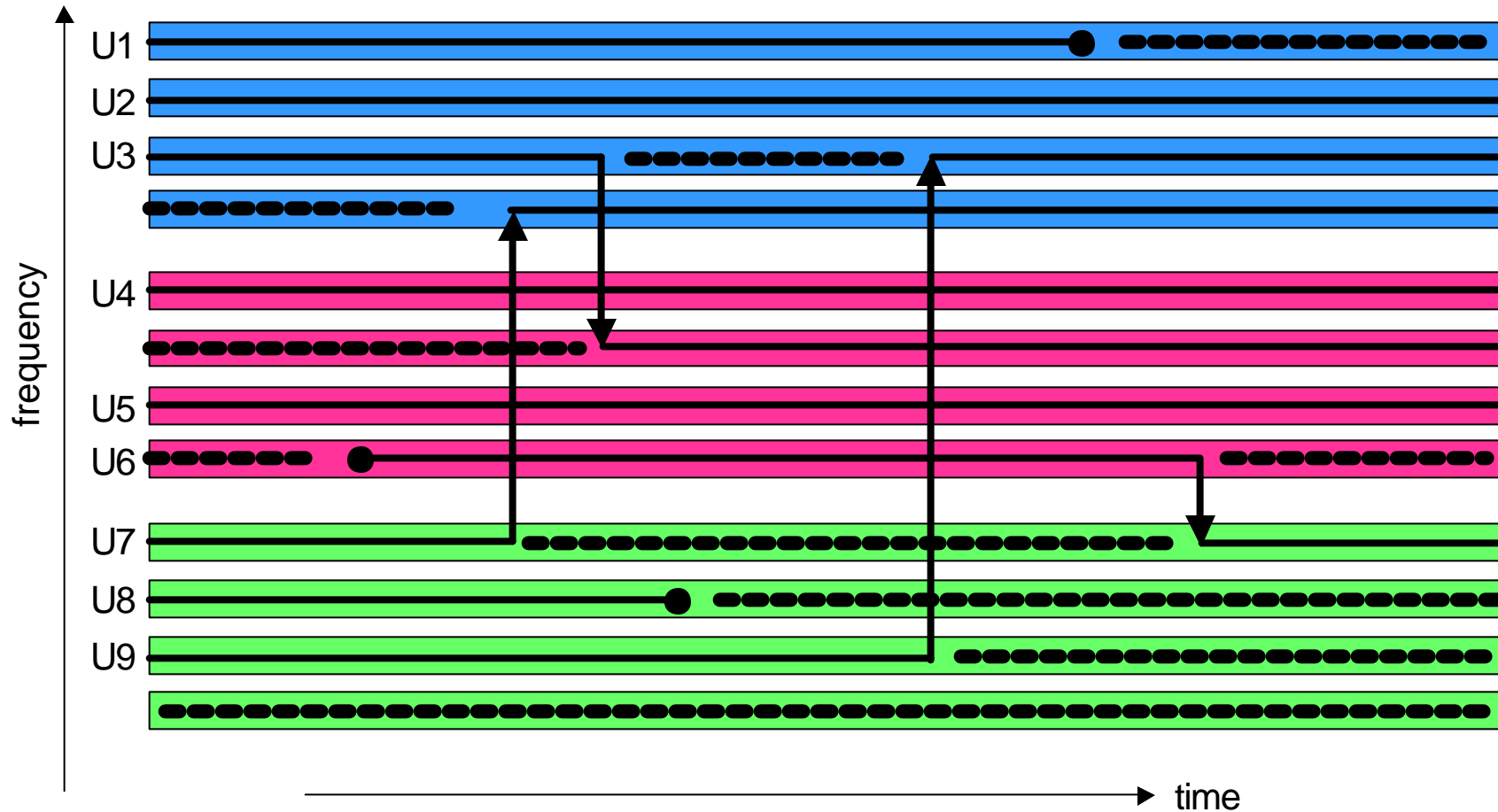
Cellular Data Systems: The Beginning: CDPD

- Consider three basestations, each with 4 frequencies available



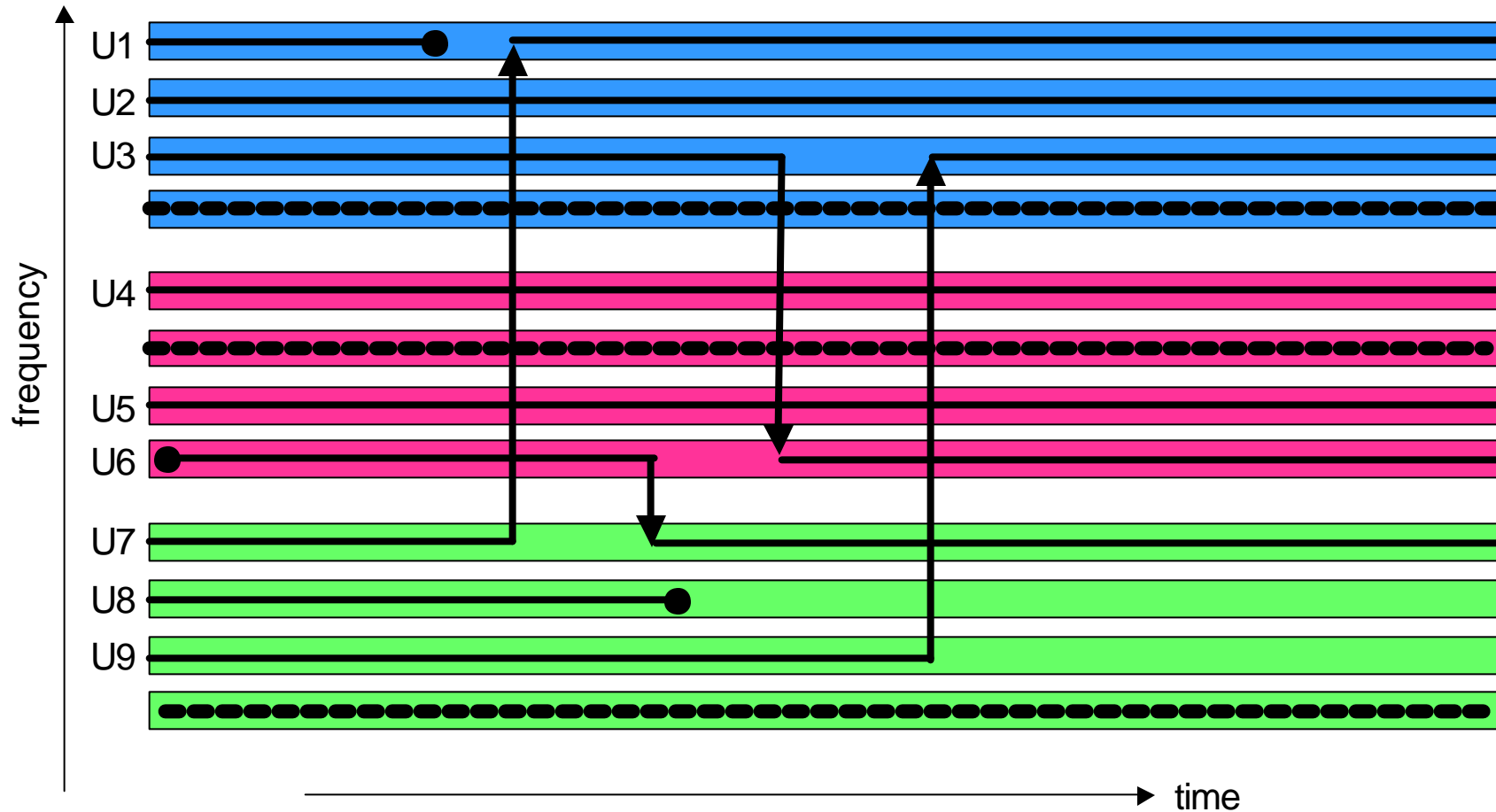
Cellular Data Systems: The Beginning: CDPD

- Fill spare capacity with packet data services, which can tolerate delay



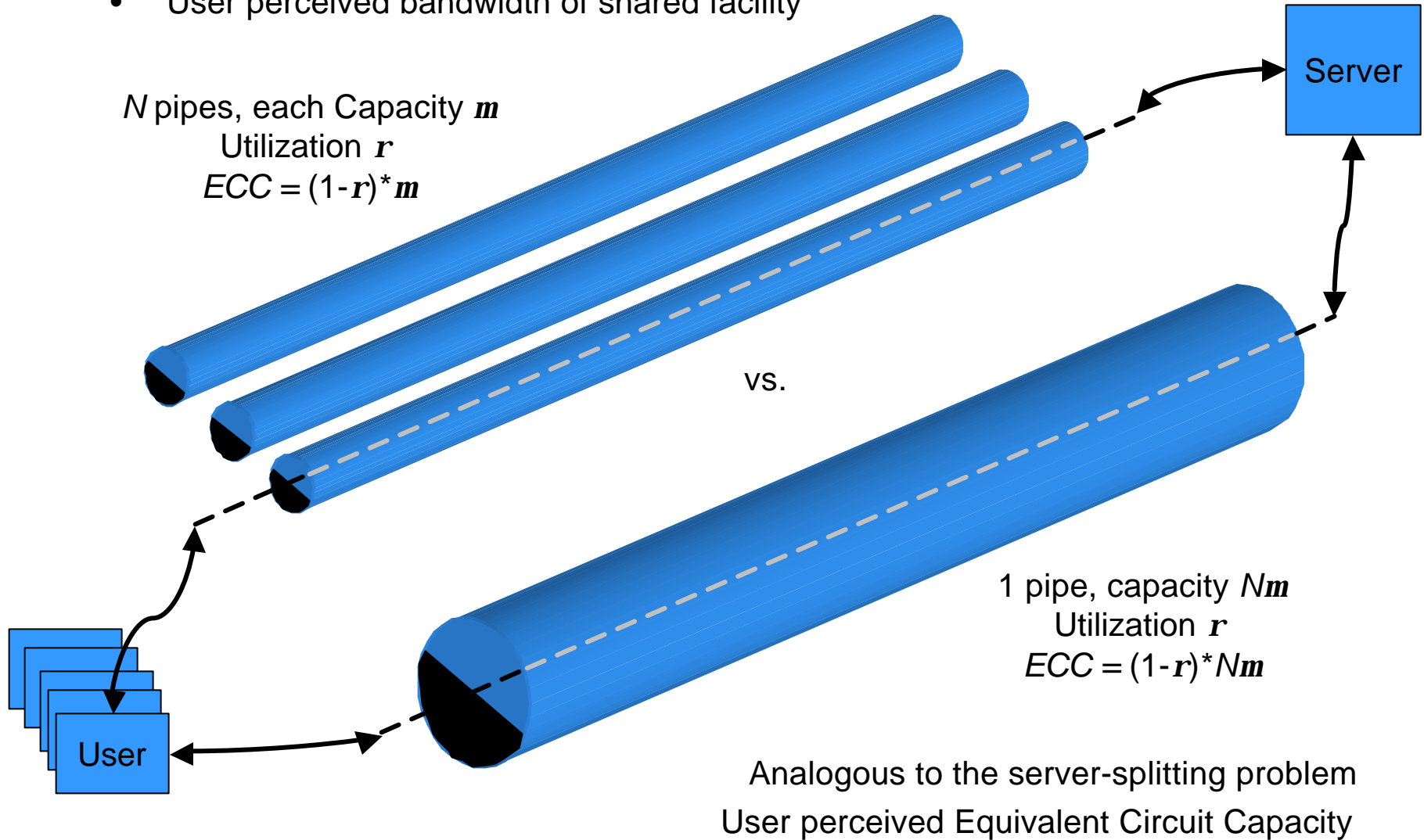
Cellular Data Systems: CDPD as a service in it's own right

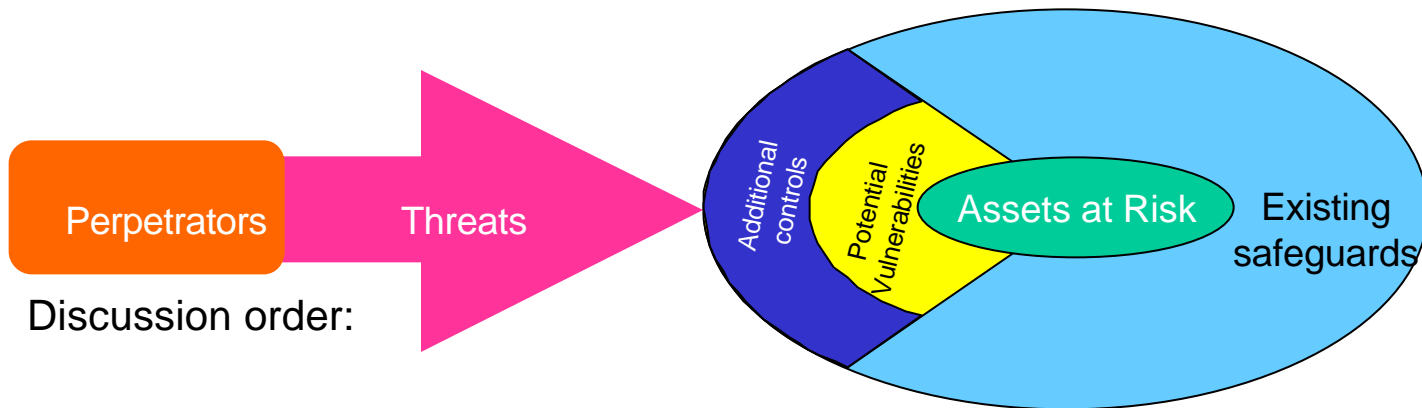
- Dedicate channels to CDPD operation



The Need for Higher Bandwidth Data Services

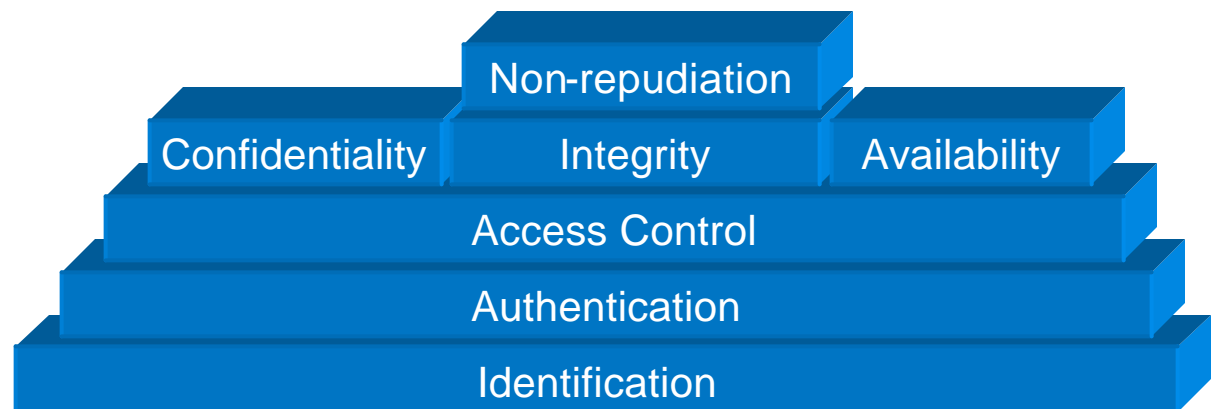
- User perceived bandwidth of shared facility

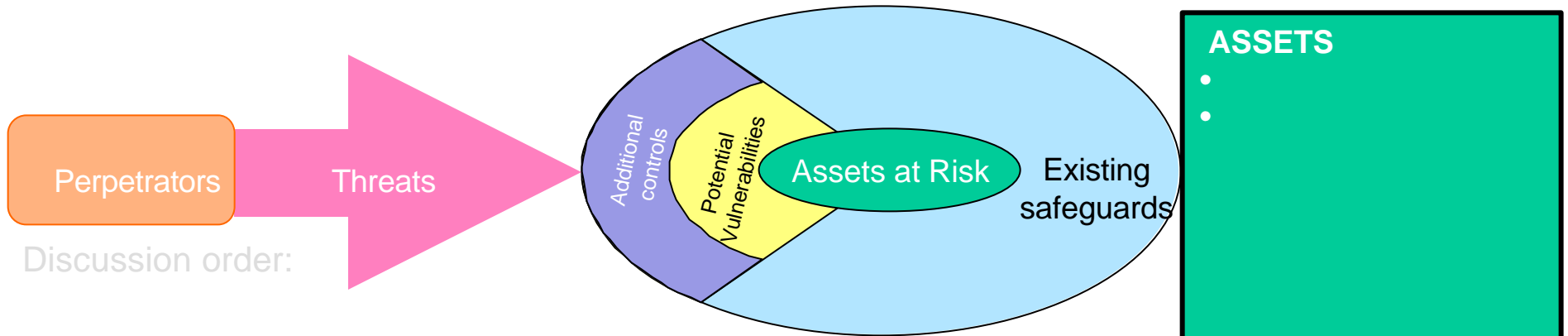




Discussion order:

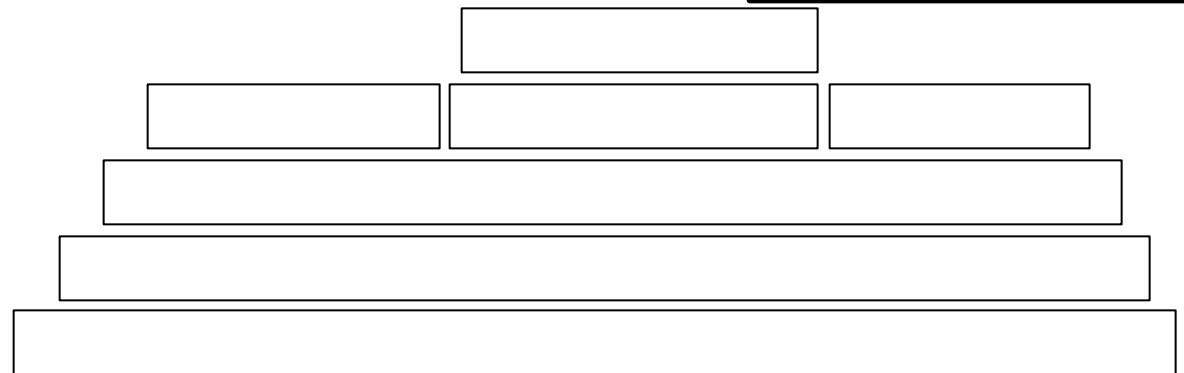
- Assets
- Perpetrators
- Threats
- Existing Safeguards
- Potential Vulnerabilities
- Additional Security Controls

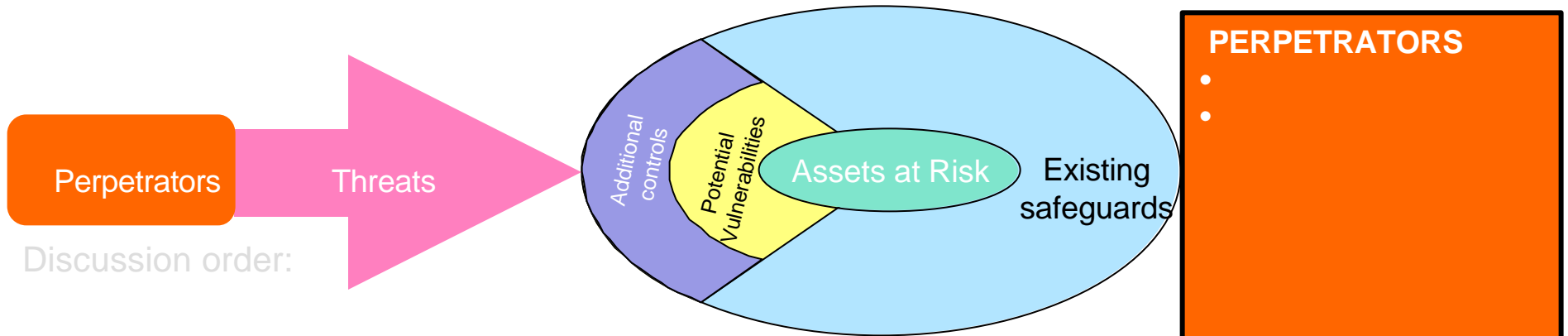




Discussion order:

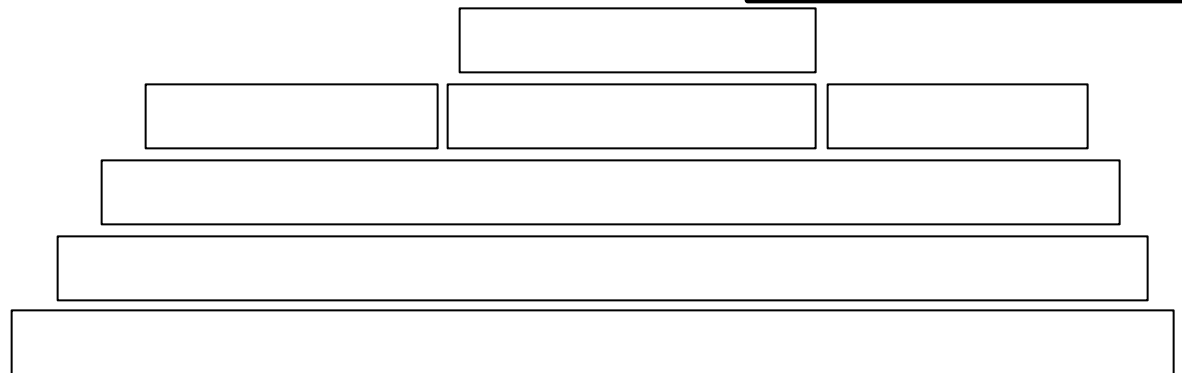
- **Assets**
- Perpetrators
- Threats
- Existing Safeguards
- Potential Vulnerabilities
- Additional Security Controls

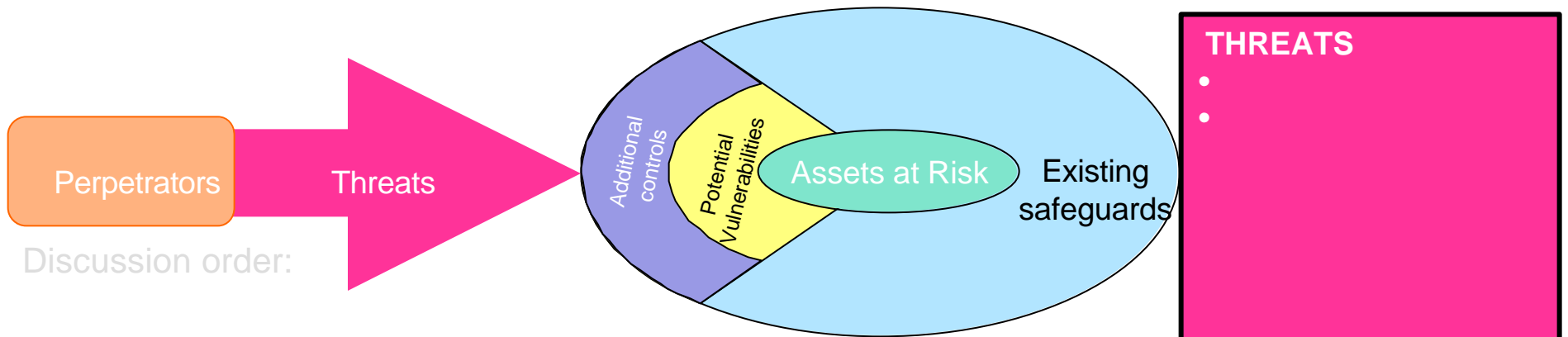




Discussion order:

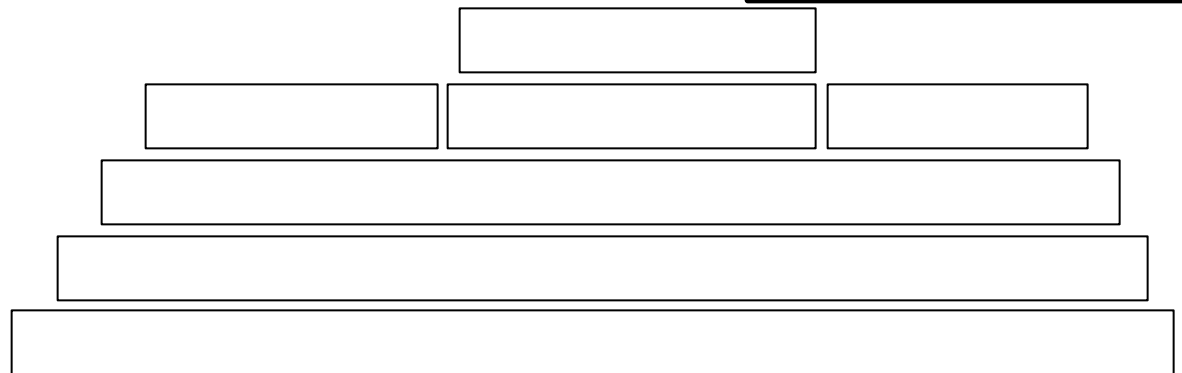
- Assets
- Perpetrators
- Threats
- Existing Safeguards
- Potential Vulnerabilities
- Additional Security Controls

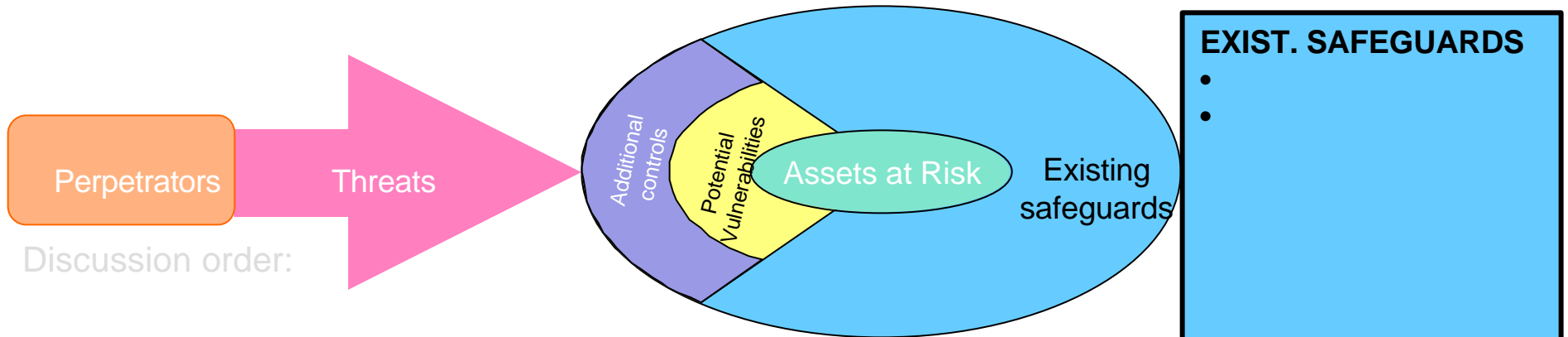




Discussion order:

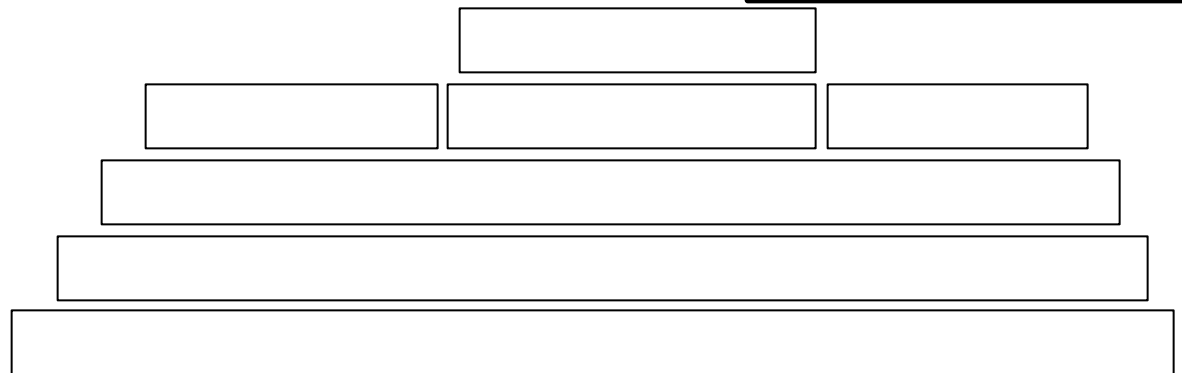
- Assets
- Perpetrators
- Threats
- Existing Safeguards
- Potential Vulnerabilities
- Additional Security Controls

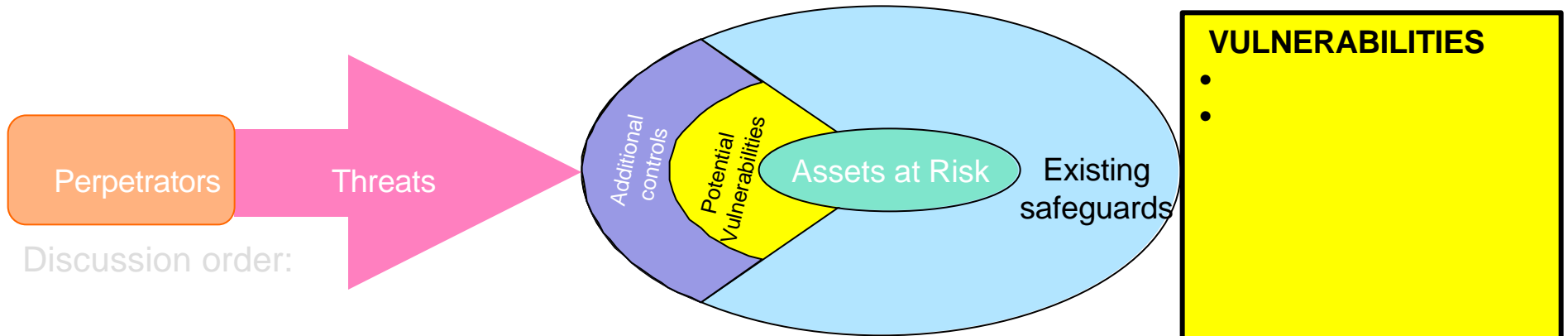




Discussion order:

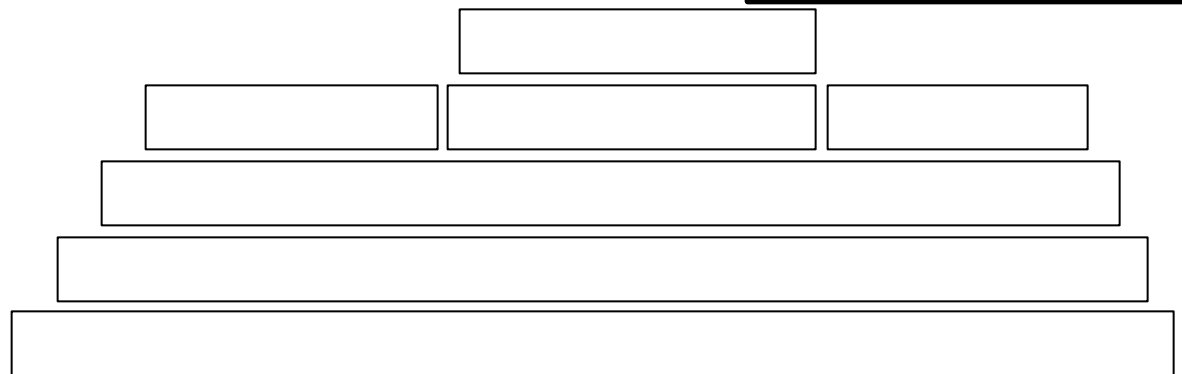
- Assets
- Perpetrators
- Threats
- Existing Safeguards
- Potential Vulnerabilities
- Additional Security Controls

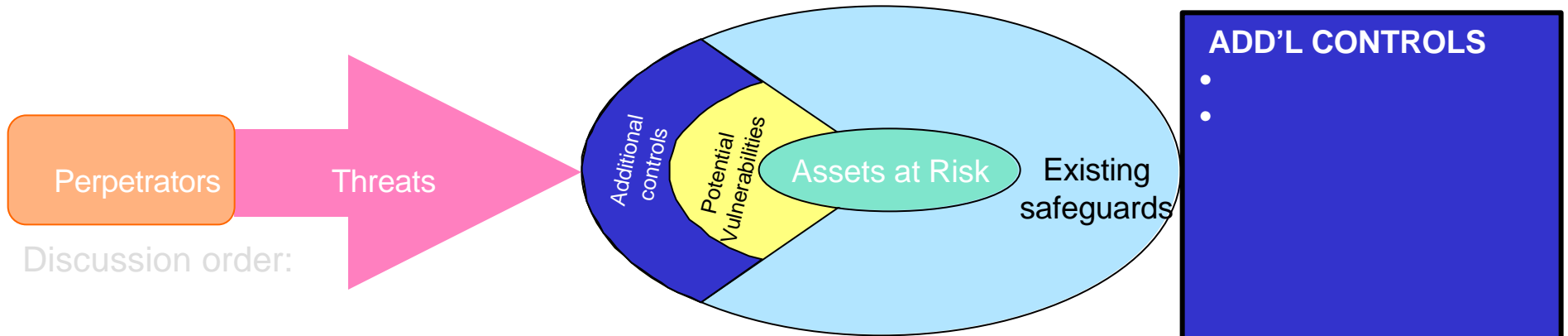




Discussion order:

- Assets
- Perpetrators
- Threats
- Existing Safeguards
- **Potential Vulnerabilities**
- Additional Security Controls





Discussion order:

- Assets
- Perpetrators
- Threats
- Existing Safeguards
- Potential Vulnerabilities
- **Additional Security Controls**

ASSETS

-
-

PERPETRATORS

-
-

THREATS

-
-

EXIST. SAFEGUARDS

-
-

VULNERABILITIES

-
-

ADD'L CONTROLS

-
-

Wireless Security Paper Assignment

- Research “wireless security” (or related subjects – e.g., privacy, etc., just as long as the topic includes aspects related to wireless systems and security issues as we have discussed in the course)
- Use whatever resources are available to you: the Internet, your local technical library, technical journals, etc.
- Pick a reference that interests you and search for related materials or links
- Write a 3-5 page report on the material you have found. Report should include:
 - Citation of source
 - Summary of fundamental ideas presented
 - Issues addressed and how they may have been addressed in the past
 - Discussion of 1 or 2 core ideas presented
 - Potential applications of technology presented (or) potential issues created
 - Future directions suggested or ones that you might infer from the topic