

Week 3: Connectivity, losses, latency, and geolocation

1. Introduction - Ping
2. Connectivity
3. Losses
4. Latency
- 5. Geolocation**
6. Conclusion

Geolocation

- **Reasons for geolocation**

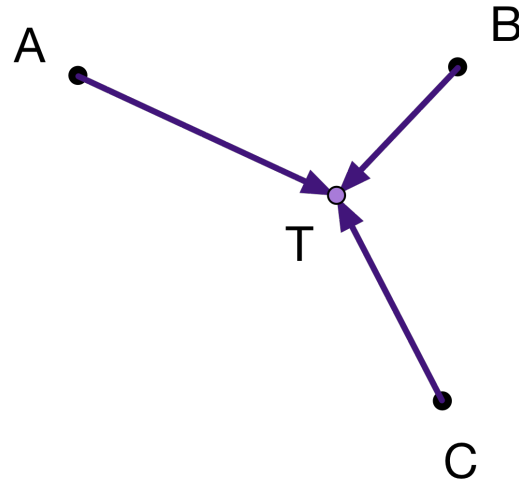
- ✓ Intellectual property owners to control delivery (e.g., BBC iPlayer)
- ✓ Advertisers to target content
- ✓ Security professionals to monitor communications

- Multilateration

- Anycast

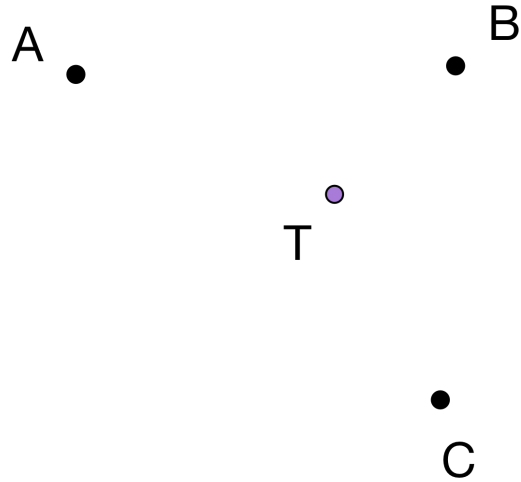
Multilateration

Triangulation

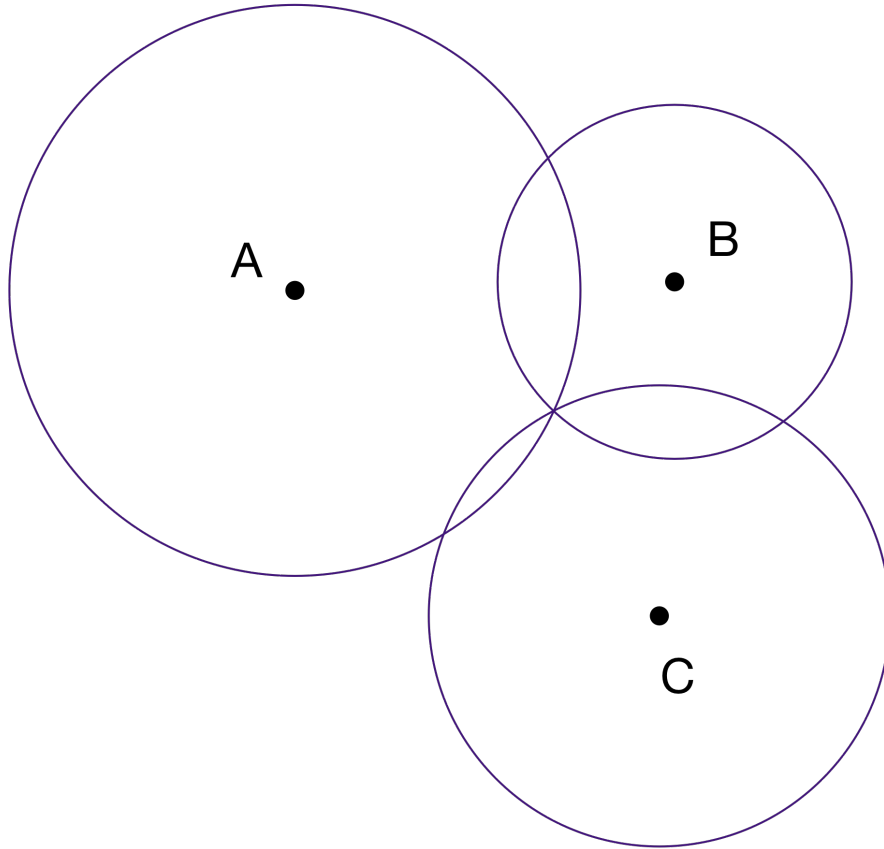


Multilateration

Triangulation →
Multilateration

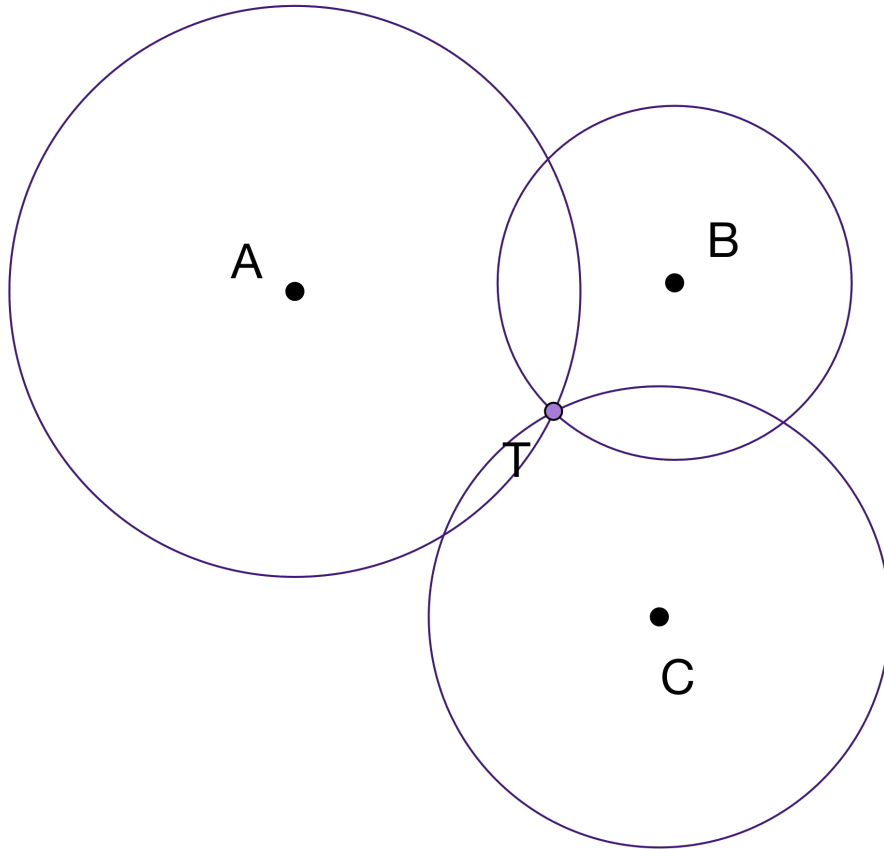


Multilateration



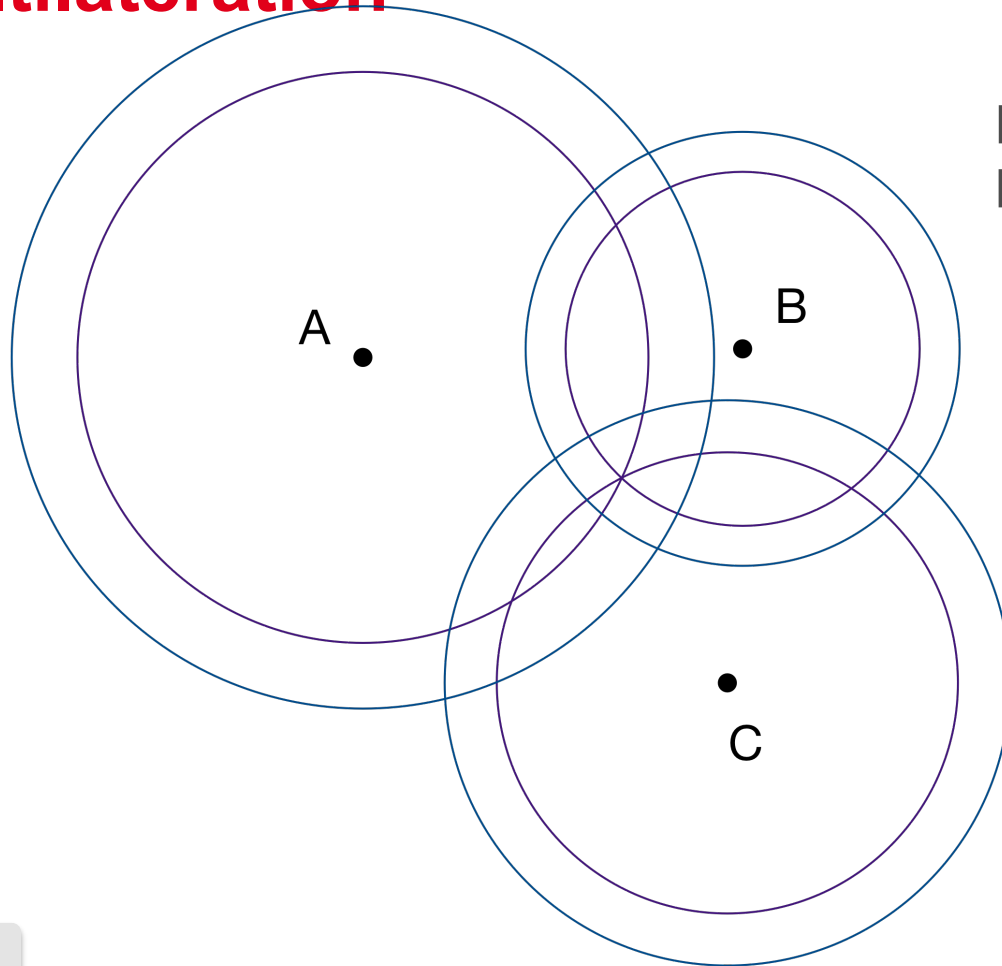
Speed of light circles

Multilateration



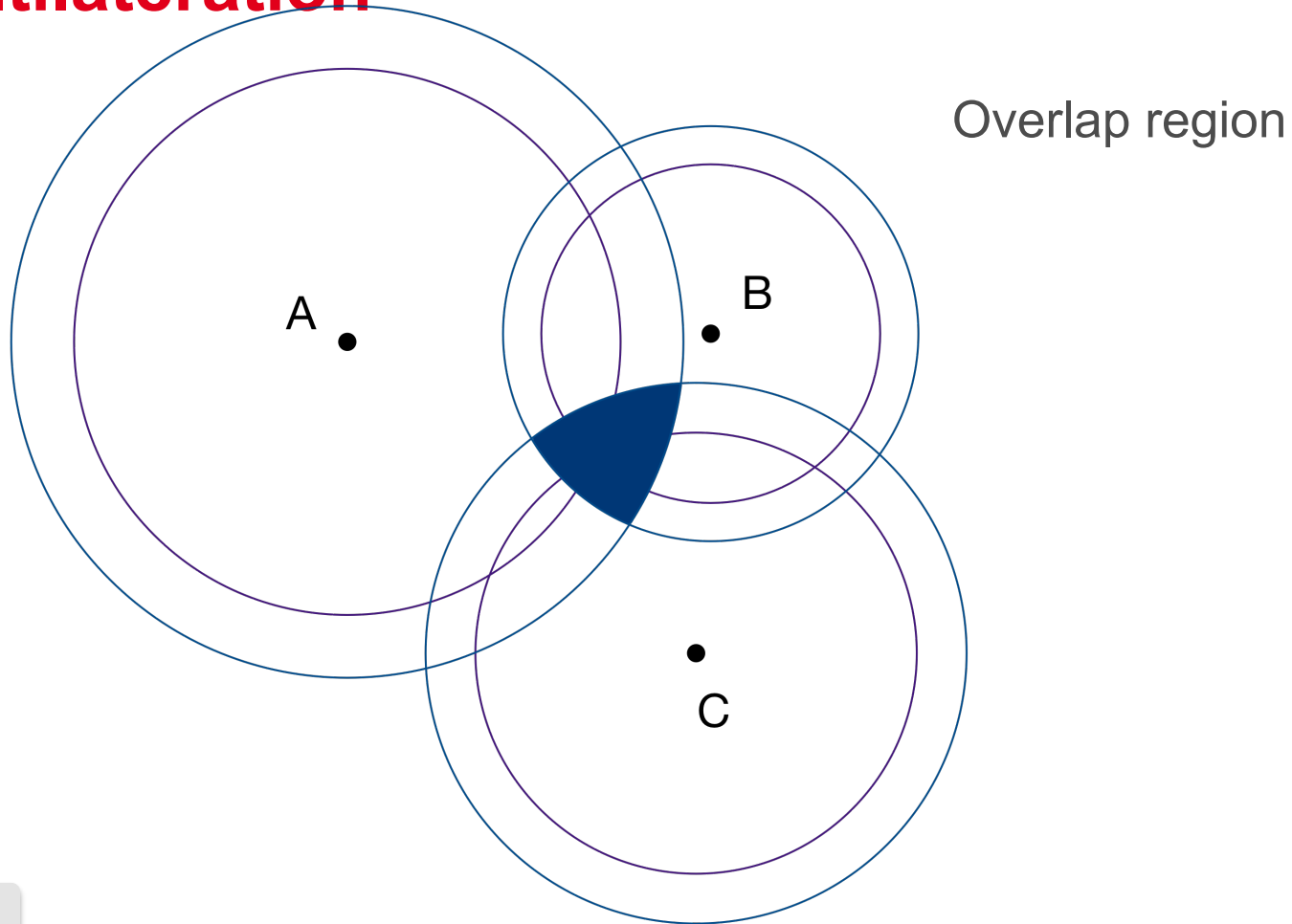
Precise intersection
of the circles

Multilateration

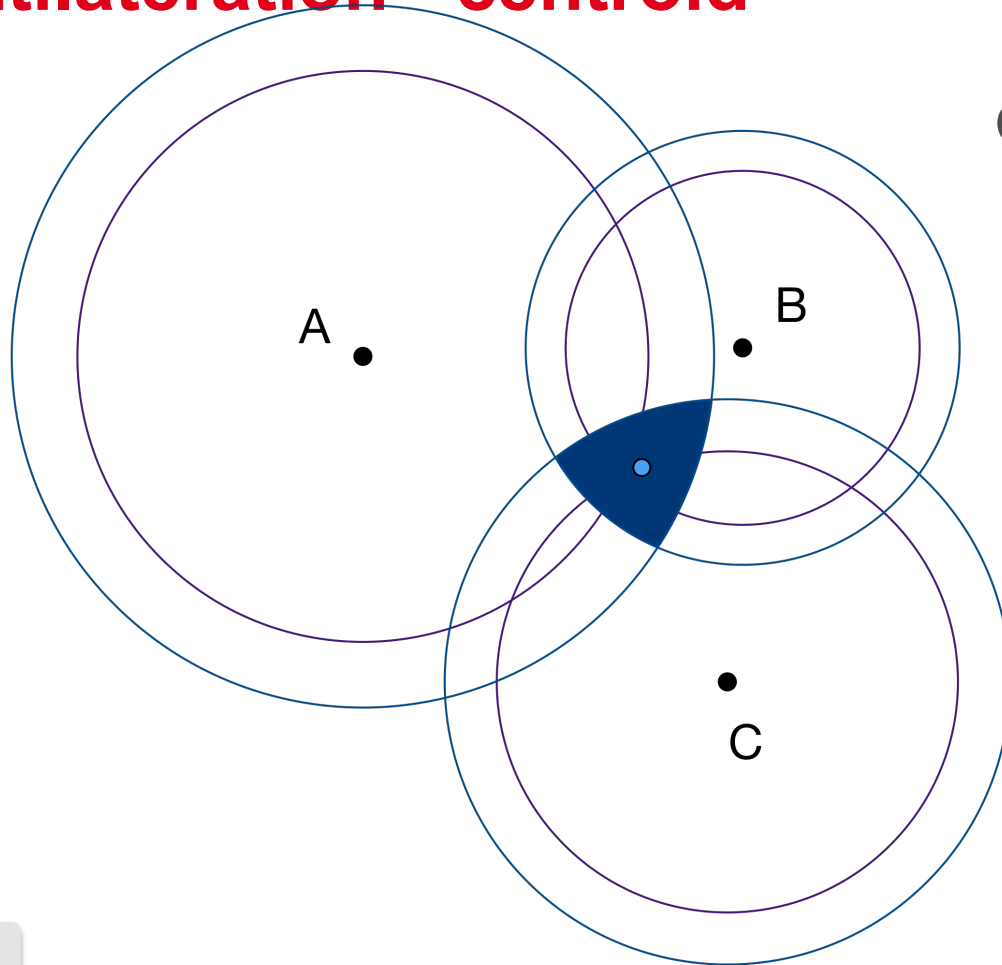


No straight lines →
Larger circles

Multilateration

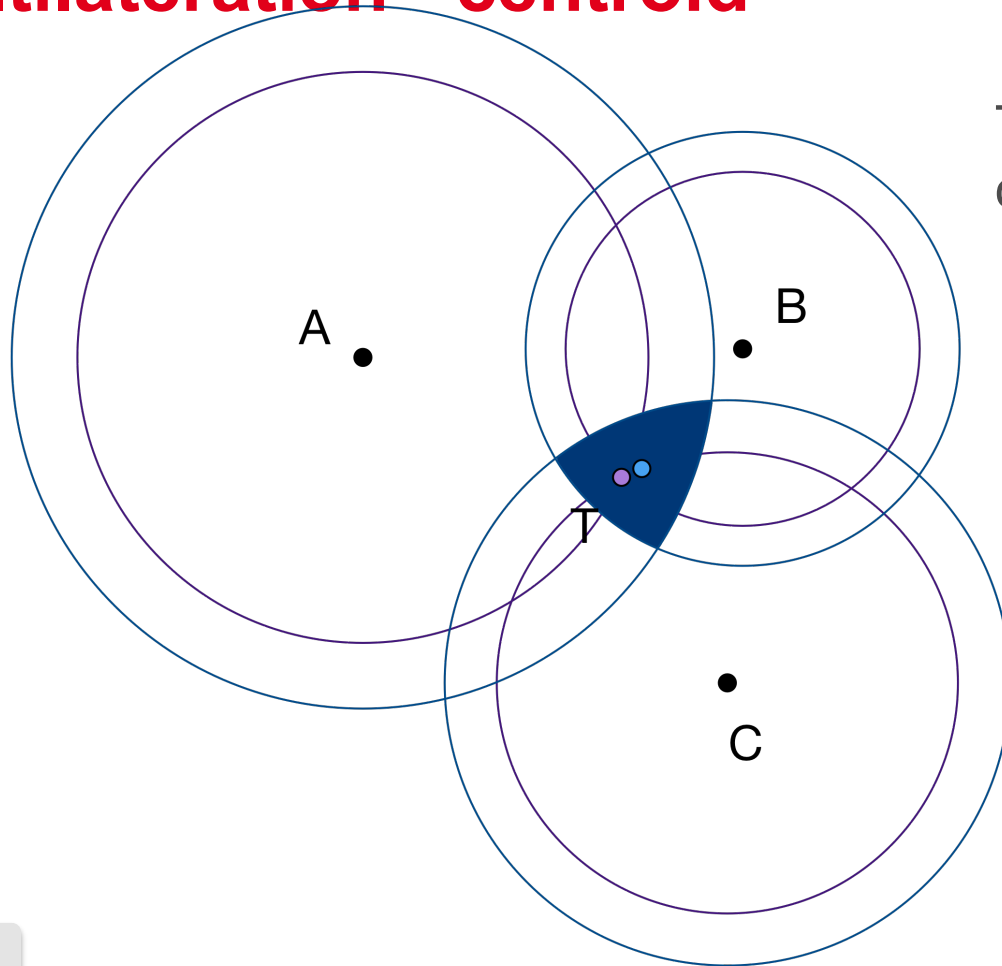


Multilateration - centroid



Centroid of the region

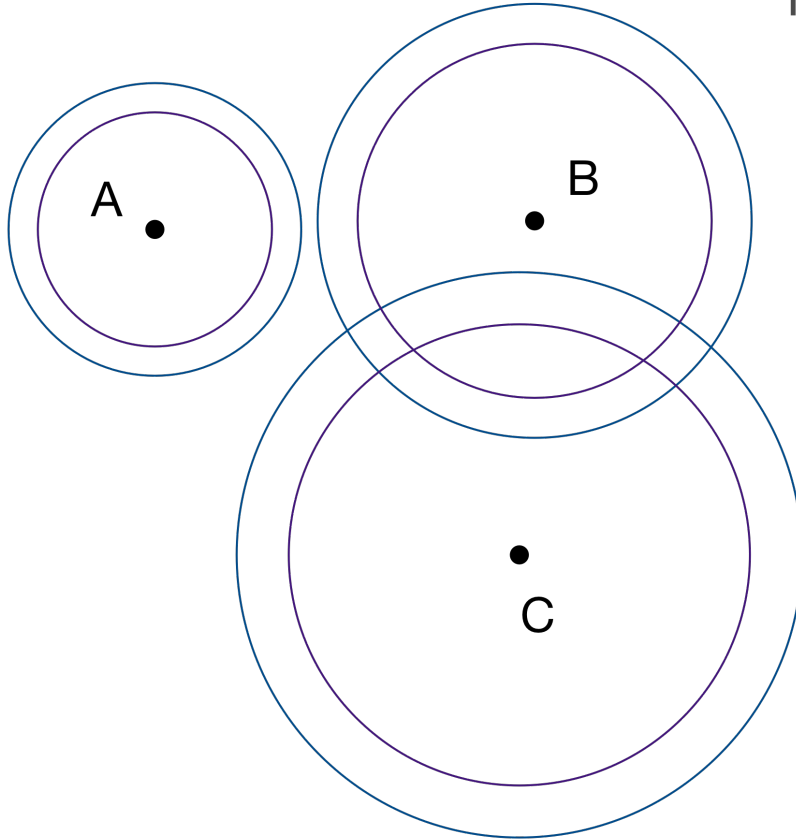
Multilateration - centroid



Target close to
centroid

Anycast

Non-overlapping circles



Geolocation

- Reasons for geolocation
- Multilateration
- Anycast

Commercial geolocation services
e.g., MaxMind, NetAcuity