

Course Overview

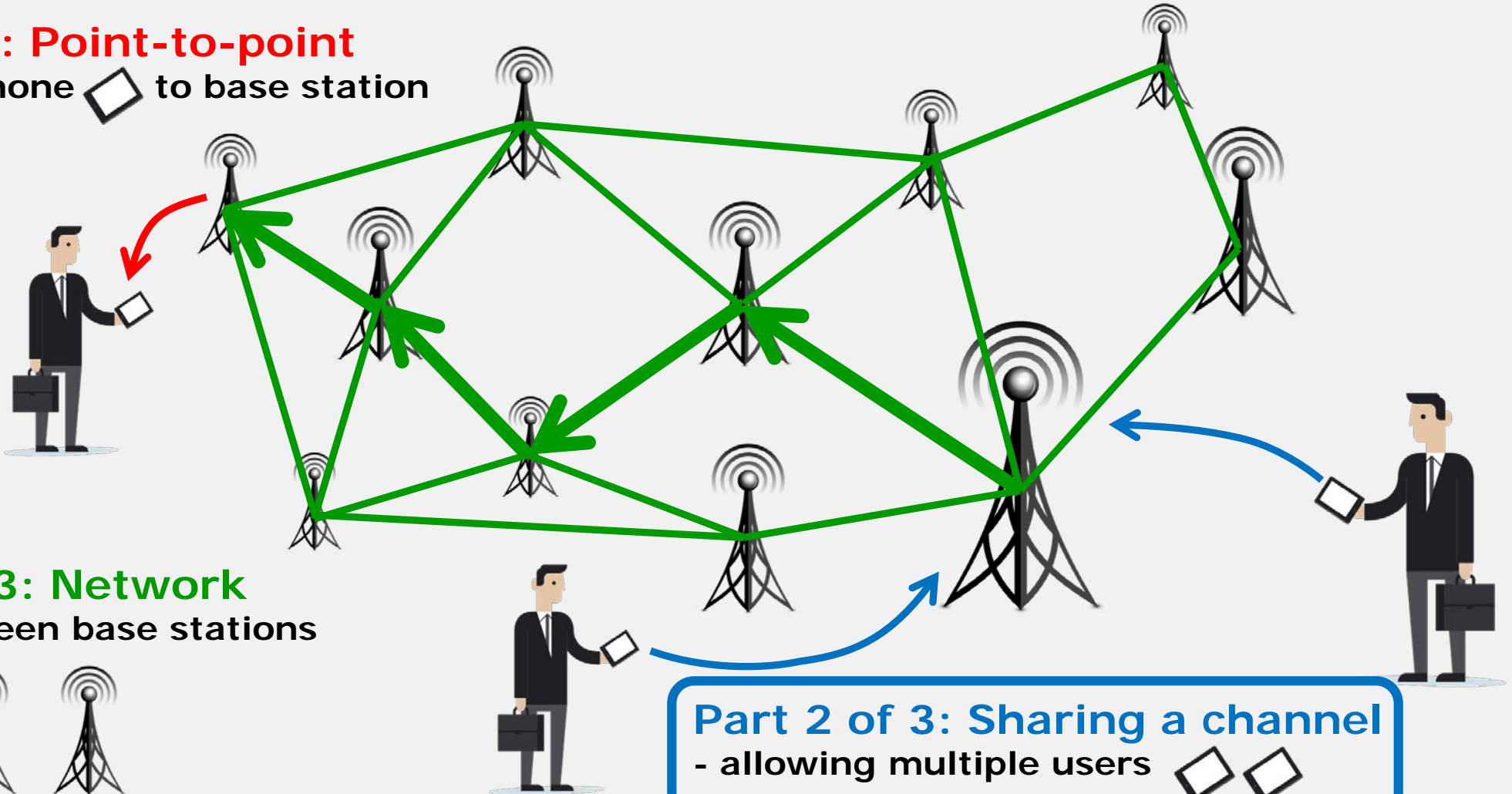
How to transmit information wirelessly?



How to transmit information wirelessly?

Part 1 of 3: Point-to-point

- link from phone  to base station



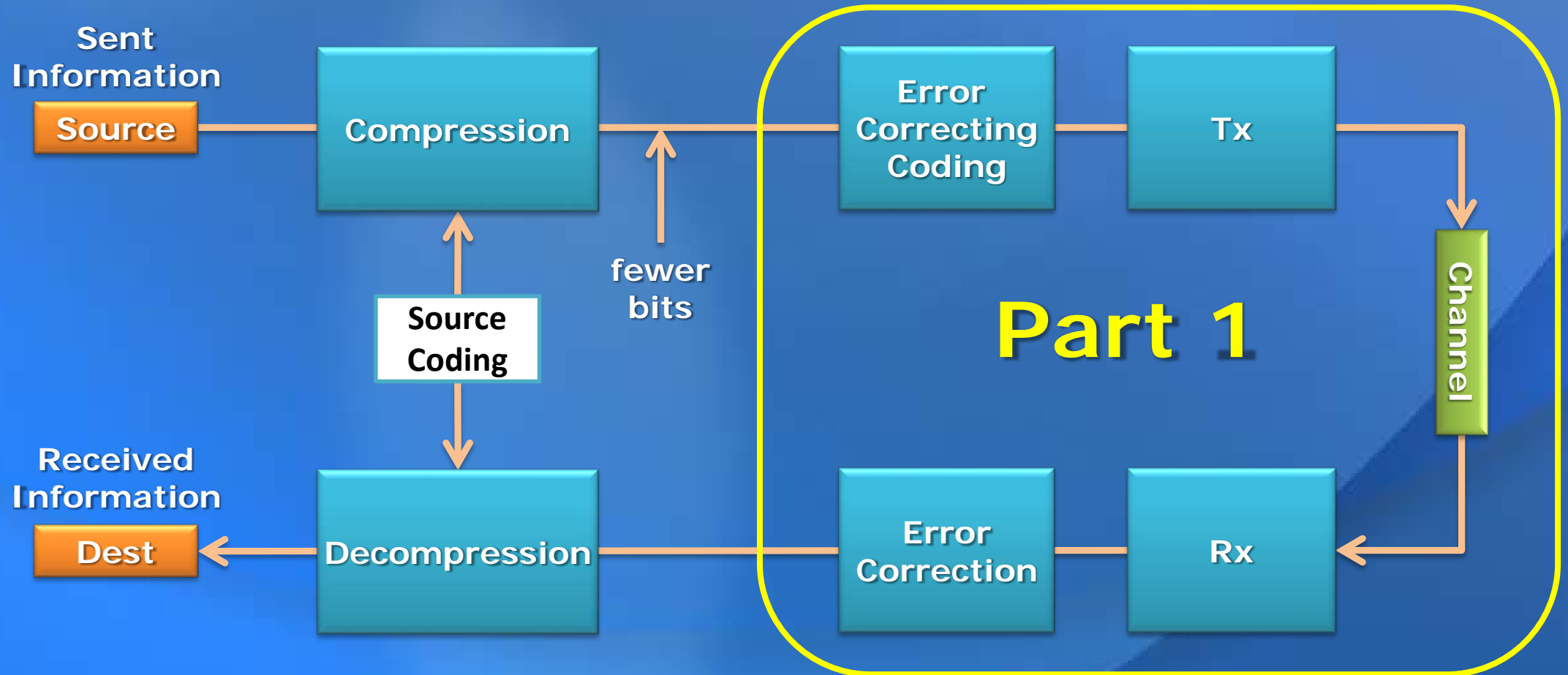
Part 3 of 3: Network

- links between base stations

Part 2 of 3: Sharing a channel

- allowing multiple users  

Source Coding



Types of Source Coding

Lossless Compression (Topic 2)

- Output exactly same as input.
- Usually used for digital content
- Key Concept: Entropy

Lossy Compression (Topic 4)





- Output "similar" to input
- Often used for audio and video
- Key concept: Frequency domain analysis (Topics 3 & 6)

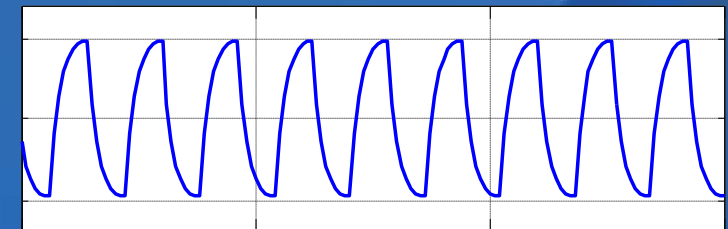
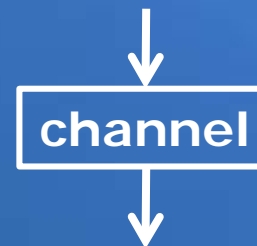
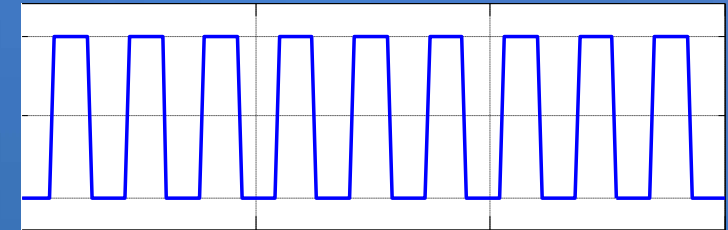
Filtering

(Topic 5)



input =  +  +  + 

output = 100%  + 90% 
+ 10%  + 1% 



Sharing a Channel

- Sharing a channel is known as multiplexing.
- Multiplexing methods
 - Space-division
 - Time-division
 - Code-division
 - Frequency-division ←
 - Topic 7: Modulation
 - Topic 8: Demodulation
 - Topic 9: IQ Modulation

