MOOC on MOOC

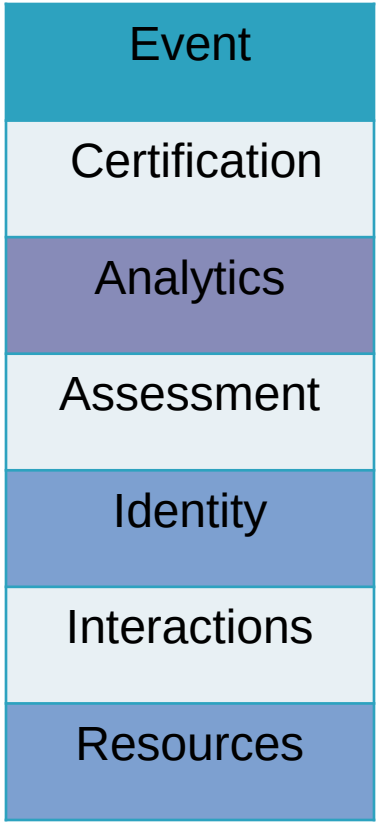
Architecture of a MOOC: Low Band-width Scenarios

MOOC4D

massive open online courses for development

3 Major Content Components

- Lessons
- Interactions
- Assessments



Lessons

- Video Lectures
  - Released Periodically(weekly)
  - Come in Batches
  - Large window of time – view at convenience
  - Bandwidth
    - High

Interactions

- Forums, Hangouts
  - Happening Continuously
  - Narrow Window of time (real time or near real time)
  - Bandwidth
    - Text – Low
    - Video - High

Assessments

- Tests, Assignments, Quizzes
- Could be quite frequent
- Some Videos may have interwoven Questions
- Time window – Large (except for in-Video questions)
- Bandwidth is low

Videos

- Streamed from a server
- Resolutions: 240p, 360p,…1080p

How YouTube streams
https://www.youtube.com/watch?v=OqQk7kLuaK4

Network Bandwidths & Video Requirements

2G GSM	10 Kbps	Voice Calls
2G CDMA	10 Kbps	Voice Calls
2.5G GPRS	50 Kbps	Internet/e-mail
2.5G EDGE	200 Kbps	Internet/e-mail
3G	384 Kbps	Video Streaming
3.5G HSPDA	5-30 Mbps	HD Streaming
4G LTE	100-200Mbps	Mobile TV

Video Quality	Resolution	Min. Bit-rate
240p	426 X 240	300 kbps
360p	640 X 360	400 kbps
480p	854 X 480	500 kbps
720p	1280 X 720	1500 kbps
1080p	1920 X 1080	3000 kbps

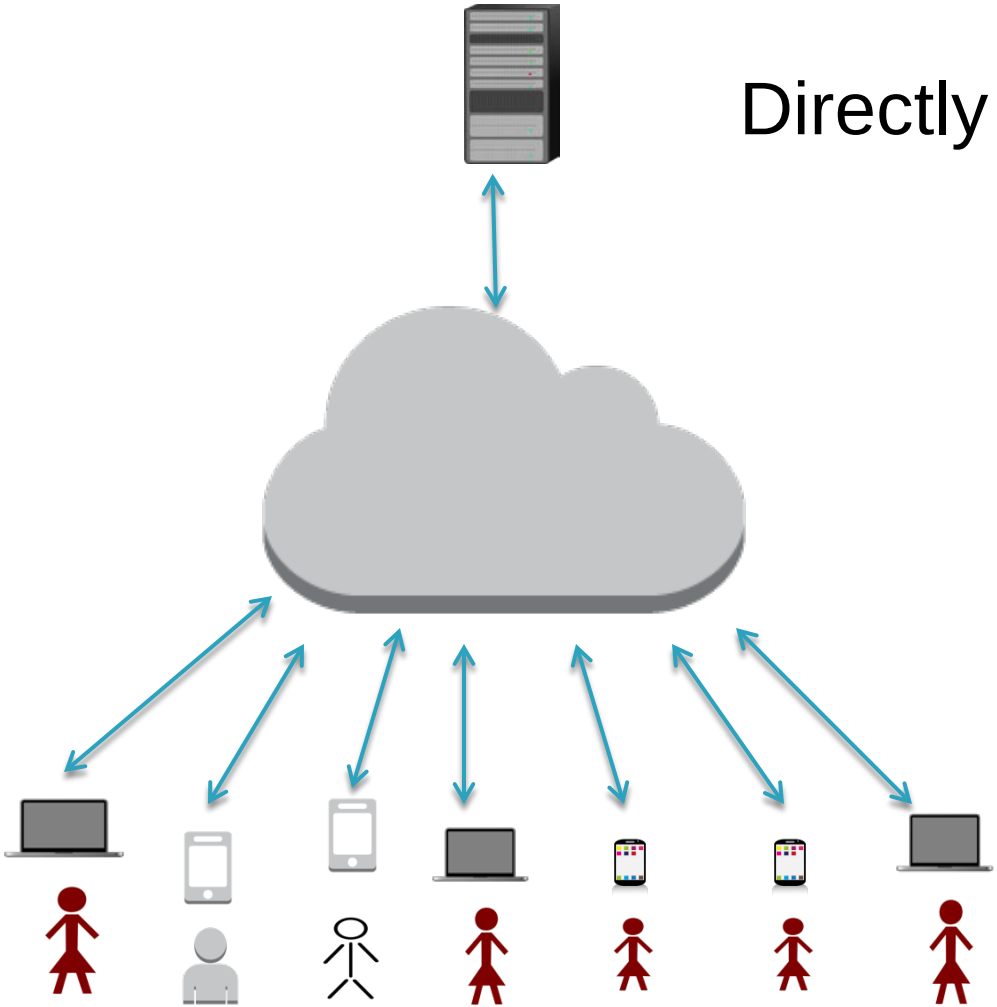
Poor connectivity?

- A major issue in Developing countries
- SPOCs for Development
- Videos won’t stream
  - The ‘spinner’
- May be able to participate in Text Interactions
- Assessments may be possible

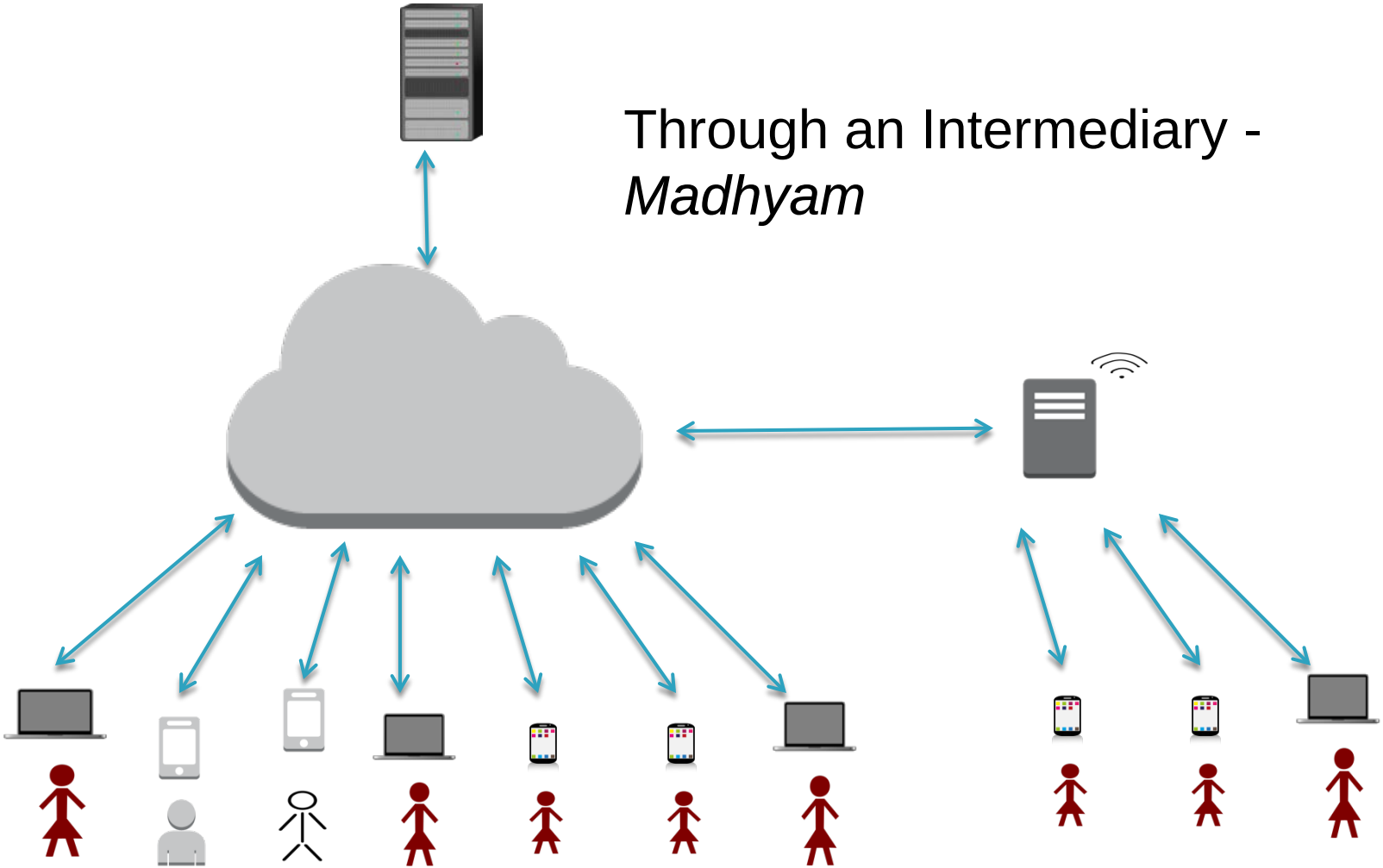
What can we do?

- Download Slides, Transcripts
- Audio only – not video
- Mail Videos on a DVD
- Use a local server

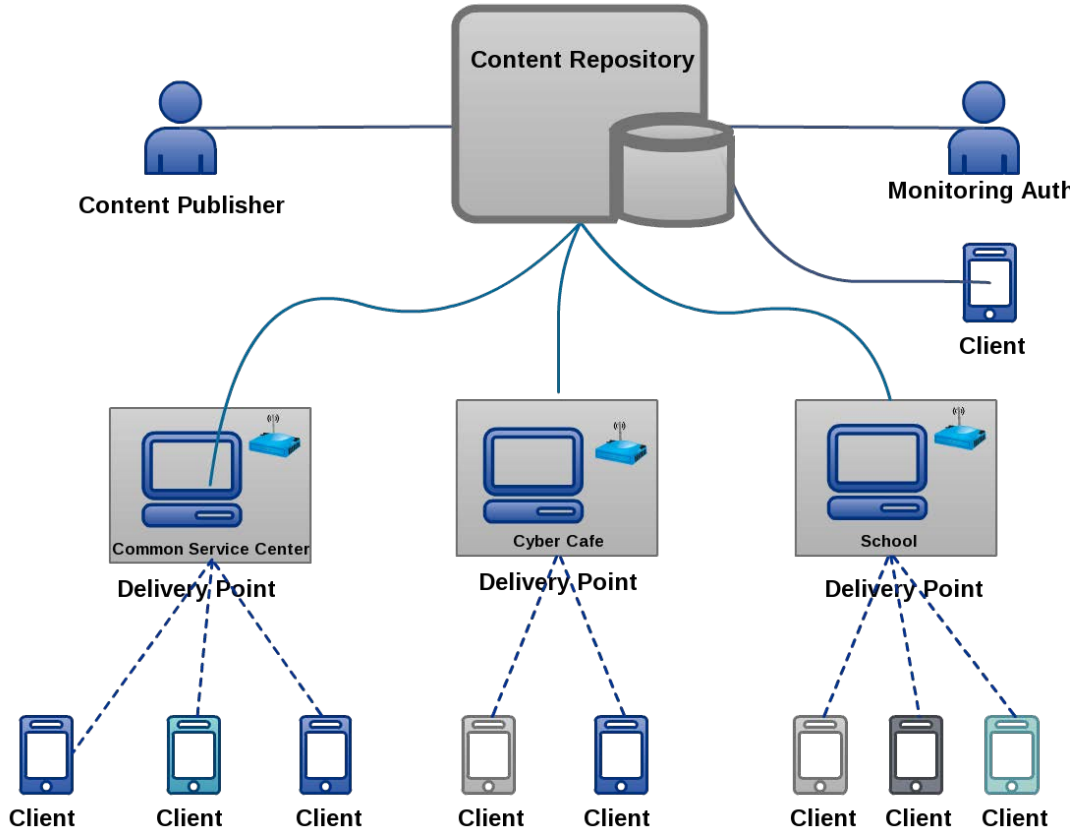
Directly to the Server



Through an Intermediary - *Madhyam*



Madhyam Use cases



References

- *Madhyam:* A model for Educational Content Distribution in network-challenged environments, Sourabh Modi, M.Tech. Thesis, IIT Kanpur, 2013

Thank You