CDNs for Personal Broadcasting and Individualized Reception
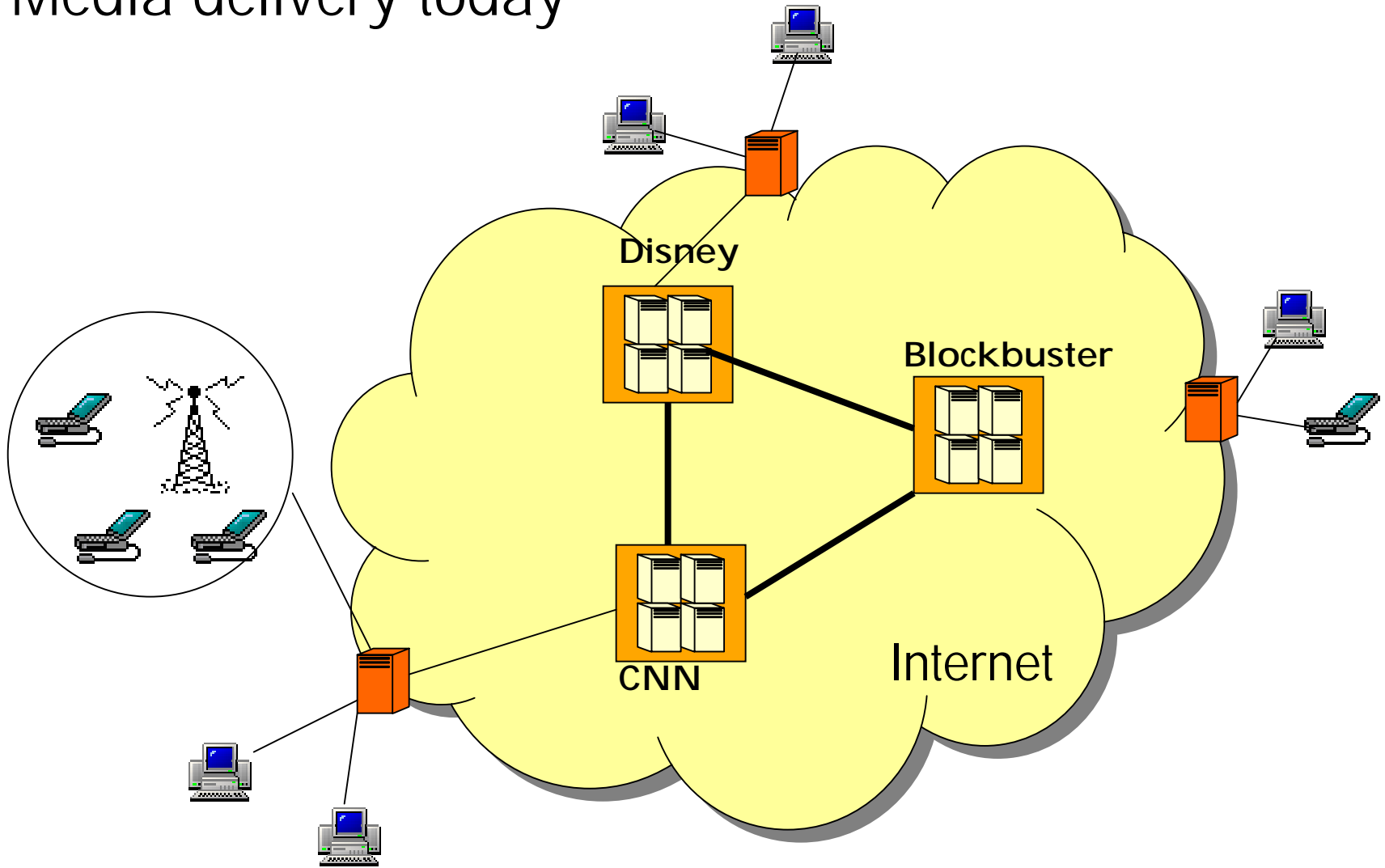
Sujata Banerjee, Jack Brassil, **Amy Csizmar Dalal**, Sung-Ju Lee, Ed Perry, Puneet Sharma, Andrew Thomas

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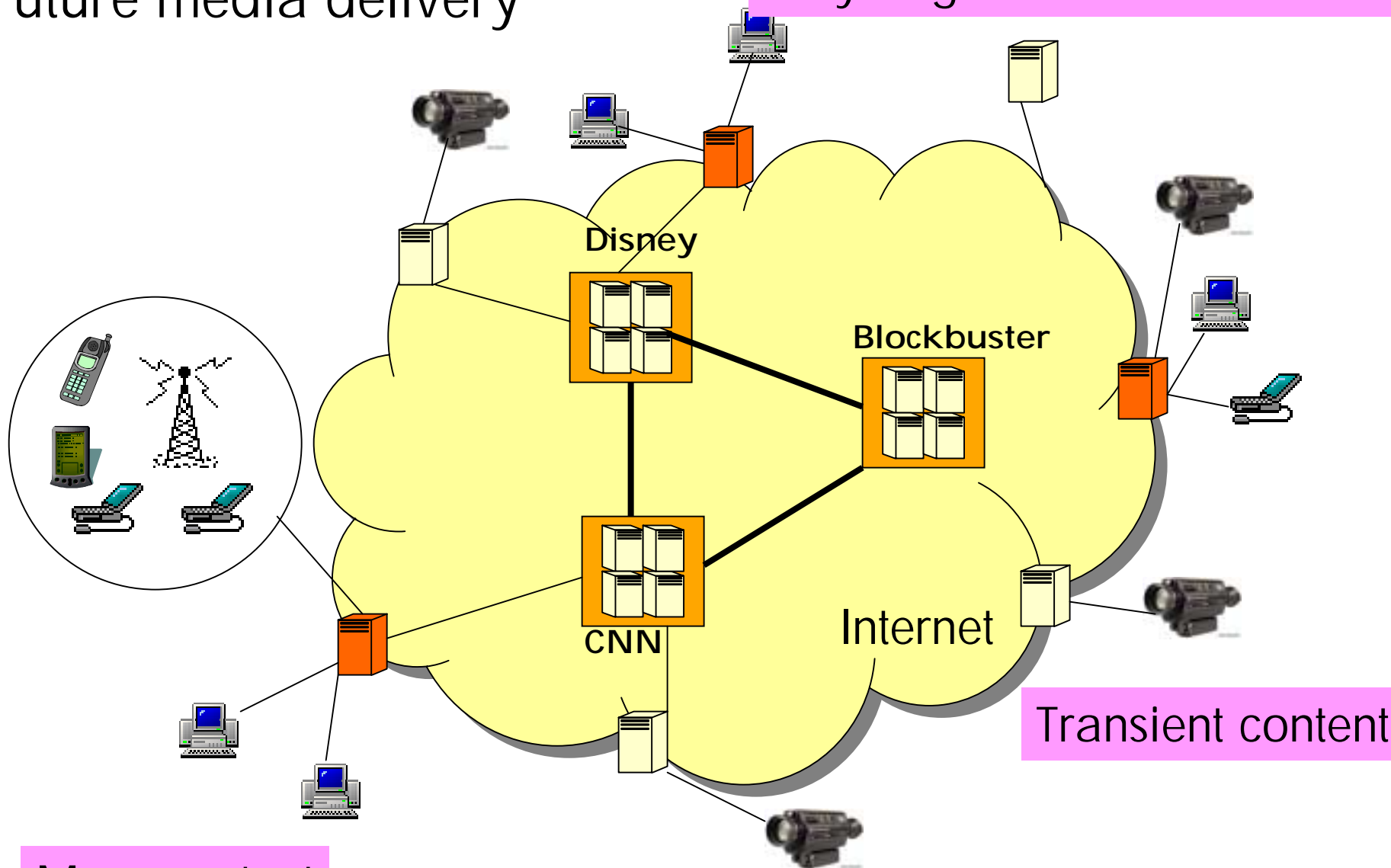
Media delivery today

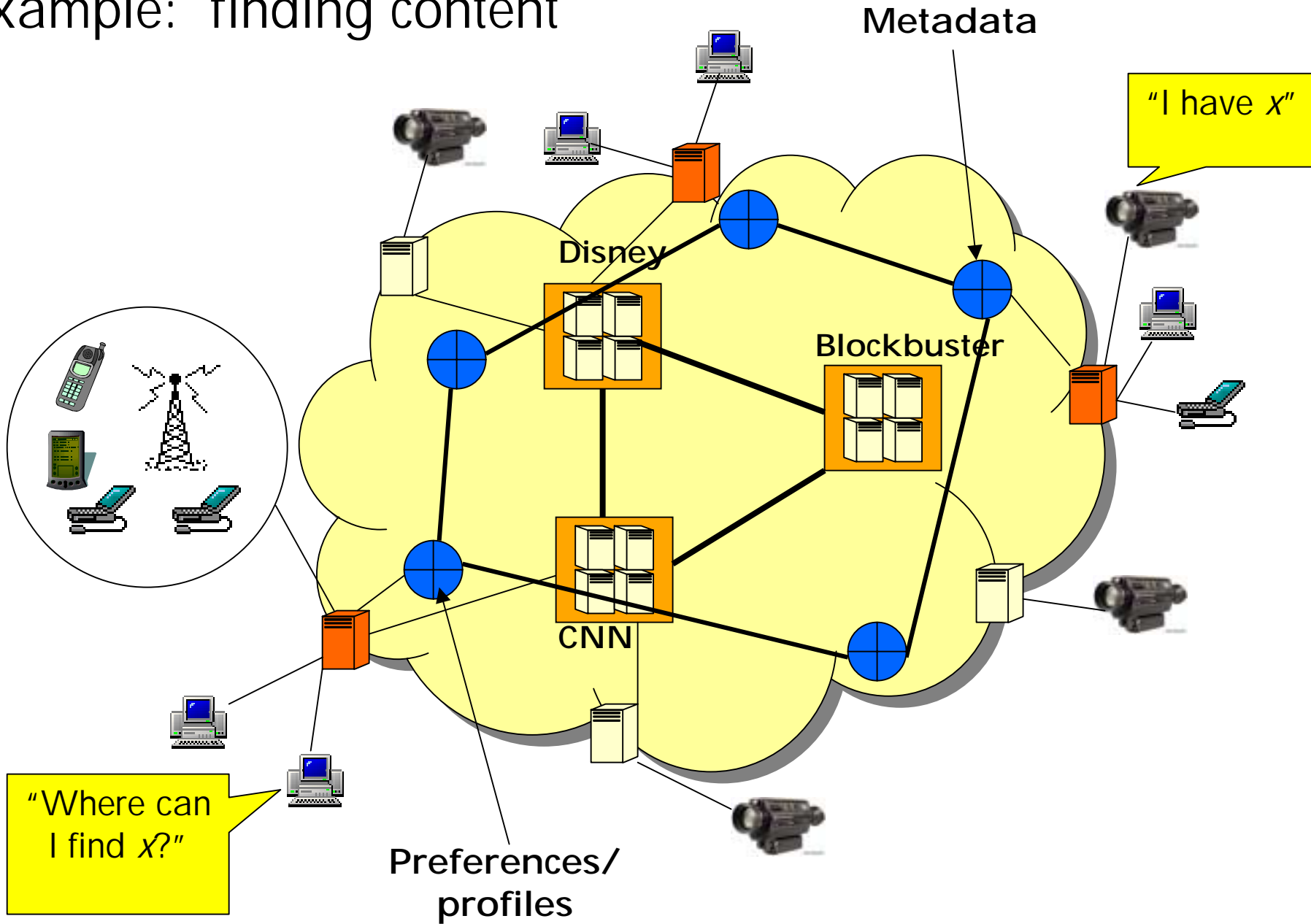# Future media delivery

Disney

Blockbuster

CNN

Internet

Transient content

More content

Diverse sources

Example: finding content

Metadata

"I have *x*"

Disney

Blockbuster

CNN

"Where can I find *x?*"

Preferences/ profiles

Example: live sports broadcast

"Mediators"

ESPN

Main camera feed

Audience "produced" content

Alternate camera views
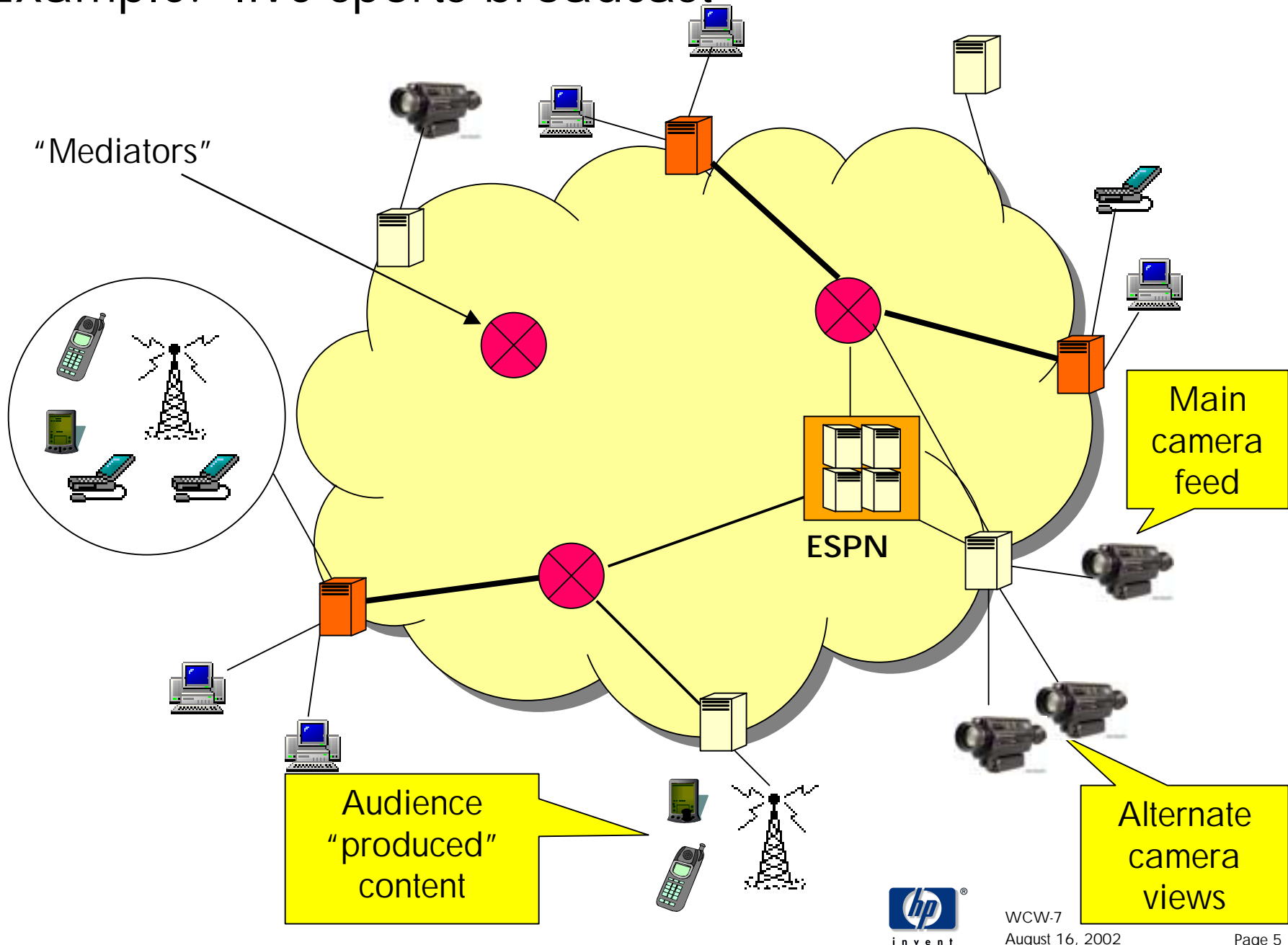
Announcement and Discovery

Listing and locating primary and secondary ("value-add") sources of media content in a scalable, effective manner

"The merging of TV Guide with a portal with a search engine with a chat room."

Announcement and Discovery: Research problems

Announcement creation

- Simple yet descriptive

- Use of metadata for automatic creation

- New devices (e.g. cameras)

Access control and privacy

- Filtering

- Scope of announcements

Directory system architecture

- Scalable

- Time-sensitive

Program Manipulation

Control, modification and coordination of semantically correlated streams

"There is only one channel, but it's your channel."

Program Manipulation: Research Problems

Stream markup

- Enhancing streams with identification, structural, and semantic meta-data

- Support for announcement and discovery

- e.g. cues

Stream manipulation/processing

- Switching

- Semantic manipulation

- Transcoding

- Synchronization

Program Manipulation: Research Problems

Multi-stream program composition

- Defining program structure like SMIL, for dynamic composition

Navigation

- Remote control?

- "Non-linear"

Personalization

- Profile based dynamic program composition

- e.g. language, favorite shows etc.

The Future Role of CDNs

Extensibility: support for new content types

- E.g. OPES

Bidirectionality: more efficient ways of uploading content

Edge processing for content manipulation

Better support for live/interactive media

Conclusion

The future of media includes a very large number of diverse, transient content sources, most of which are not copyrighted

This future presents some novel problems, such as

- How to locate content in a scalable and timely manner

- How to personalize content to best meet your needs and/or the needs of your audience

CDNs will continue to play a role in media delivery, but must evolve to support this increase in content

http://www.hpl.hp.com/techreports/2002/HPL-2002-63R1.html