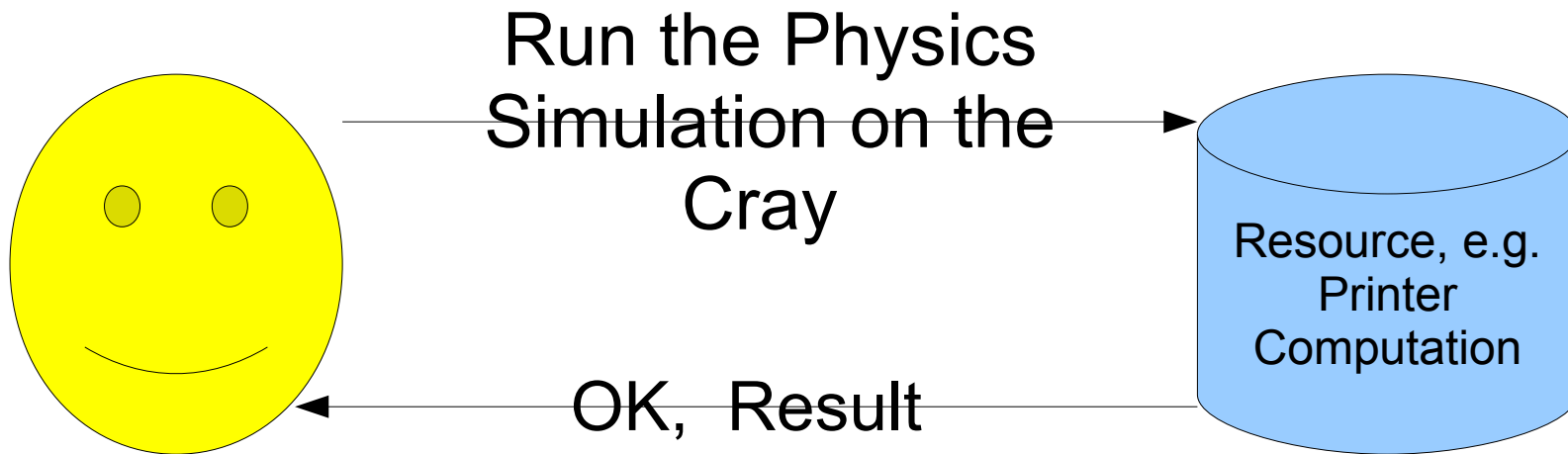


Content-Centered Networking

CS460
Spring 2010

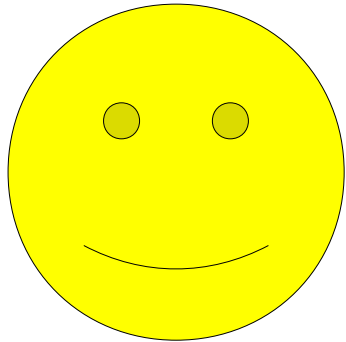
Historic IP View of Communication



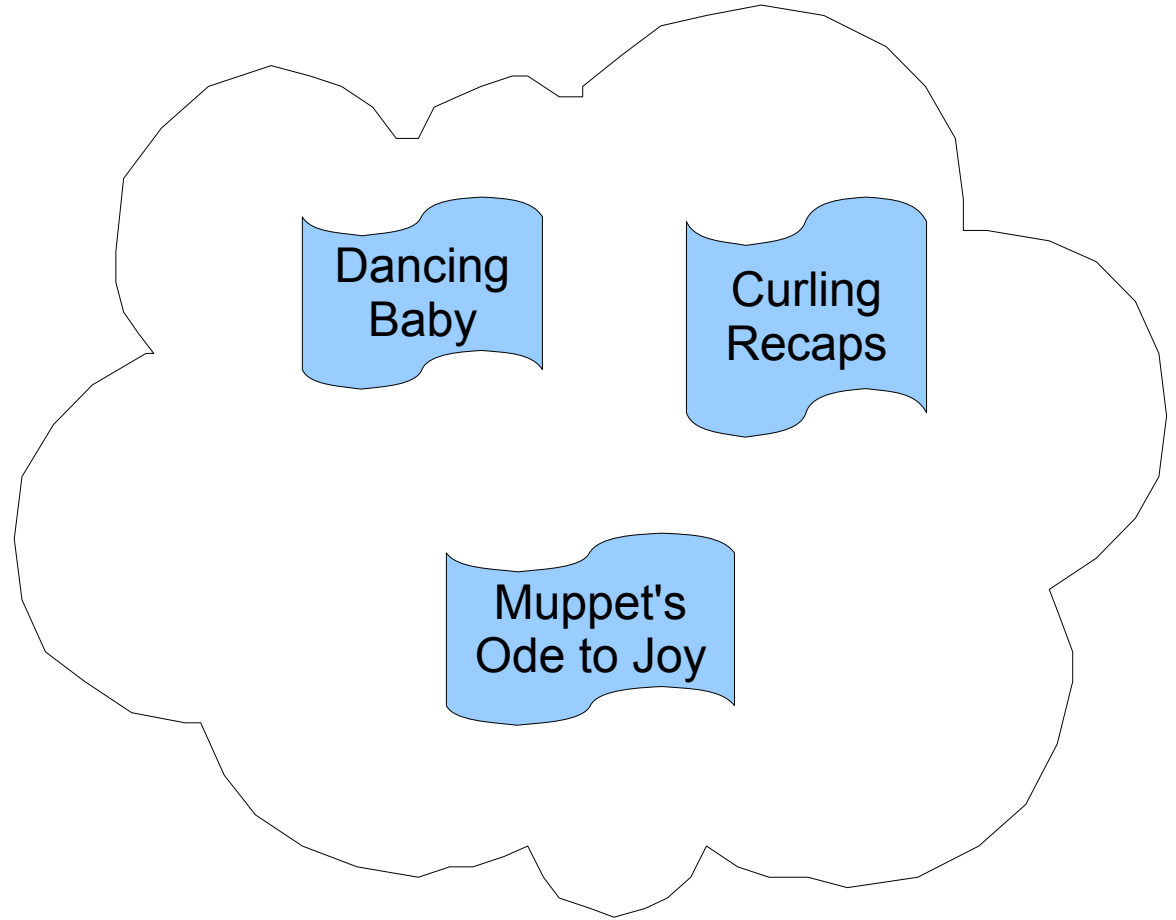
Content Delivery Networks

- Communication is data oriented
- Data is “in” the network
 - No one host holds the data
 - Caching, e.g. Squid
 - Strategic placement, e.g. Akamai

Content-Centric Communication

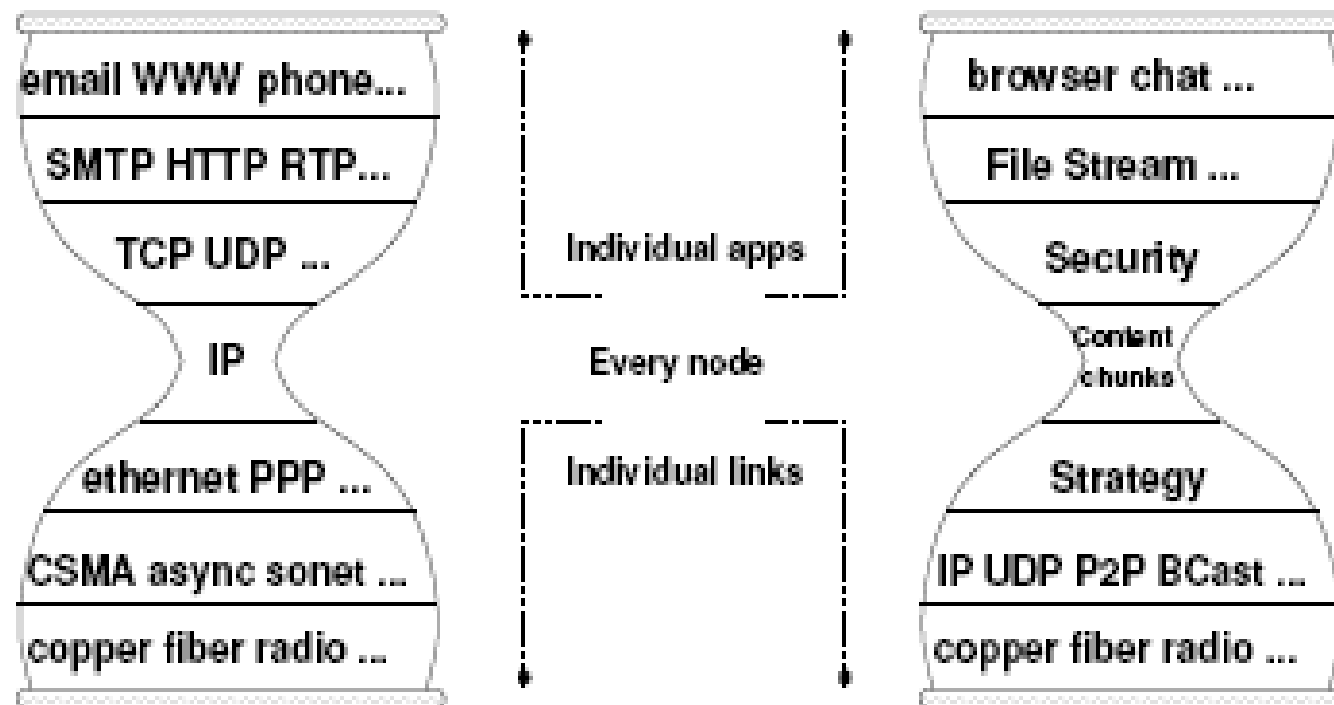


Show me that funny
Dancing Baby video



Content-Centric Networking

- Promoted by Van Jacobson and his team at PARC
 - <http://www.parc.com/publication/2318/network>

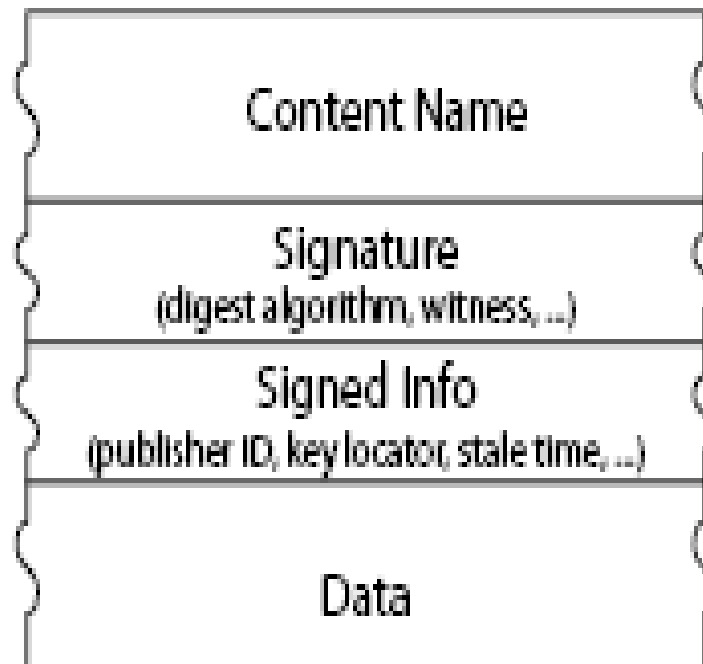


Basic Communication Elements

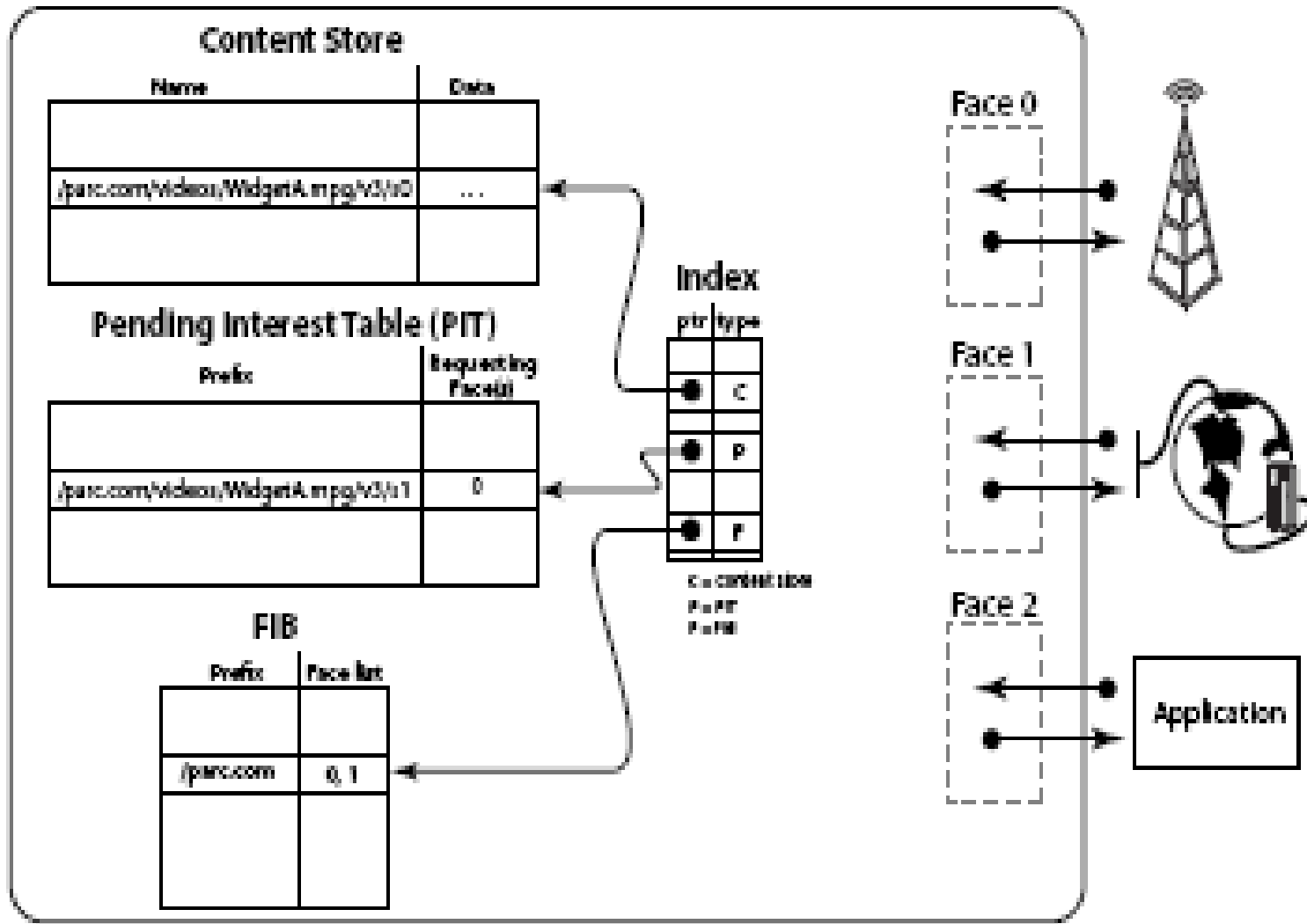
Interest packet



Data packet



Communication Infrastructure



Security in CCN

- With IP, you think about securing the connection
- With CCN you just secure the data
- Content packet is always signed (integrity)
 - Requester and/or infrastructure can verify the signature
 - Key distribution?
- Could chose to only look at data signed by particular entities. Or signed by signed by particular entities.

Confidentiality in CCN

- Applications can chose to encrypt the payload
 - Again key management responsibility of higher layers.

Availability in CNN

- Interest requests are merged
- There is no way a client can directly probe a server.

Attacking the infrastructure?

- Could you put up a Content router that doesn't play by the rules?
- Could you insert yourself in the middle of a CCN network?
- If you could “own” a CCN element, would you be able to launch attacks on availability? Or integrity and confidentiality?