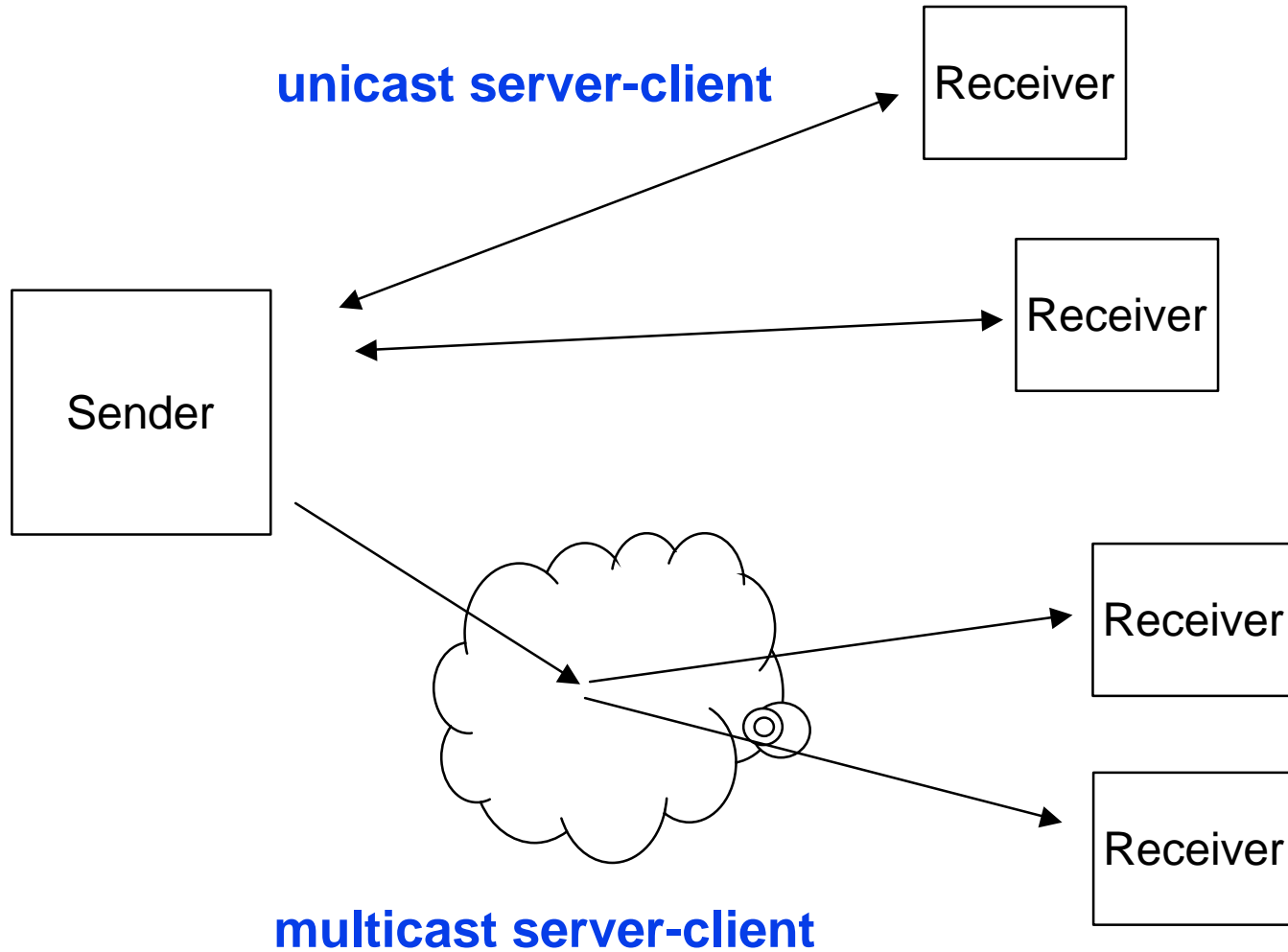


Internet Media Guides – Some Issues

Rod Walsh, Yuji Nomura, Juha-Pekka Luoma,
Hitoshi Asaeda, ...

IETF-57, MMUSIC, 17.July.2003

Usage of IMG



Data Consistency and Inconsistency

- Data consistency is pivotal to IMGs
 - E.g. of IMG Descriptions/data: describing a movie and access to it
- It's about timeliness and time-criticality (i.e. there is no one-size-fits-all scenario) – e.g. long term vs. imminent use
- Avoid stale data (changes & deletions) and enable additions
- Must identify 'blocks' of IMG Metadata so updates can give less than 'all the metadata in the world'
- Must version these 'blocks'
 - Timestamps, sequence numbers, others...(?)
 - Need to recover missing 'blocks' in some cases
- Additional considerations needed for intermittent connections
 - How timely?
 - Lifetime (expiry) information

Multicast Server-Client

- Needed for massive scalability and unidirectional connections
- SAPv2, been there, done that, got the headache
 - Uplink is infeasible sometimes
 - SAP & media in same scope becoming less important with SSM
 - Latency & prioritization 'out of control'
- ALC, pretty good feature set, needs fully specified protocol
 - Reliability by plug-in FEC, congestion control, payload segmentation & multipacket payloads, prioritization feasible
 - FLUTE for fully specified file delivery
 - Initial goal was for large files – should handle small well ???
 - And what about 'bootstrapping'? (ASM isn't always our best friend)
- Any other great ideas...?
- BTW, are there other really bad SAP issues needing fixing (not repeating)

Unicast Server-Client

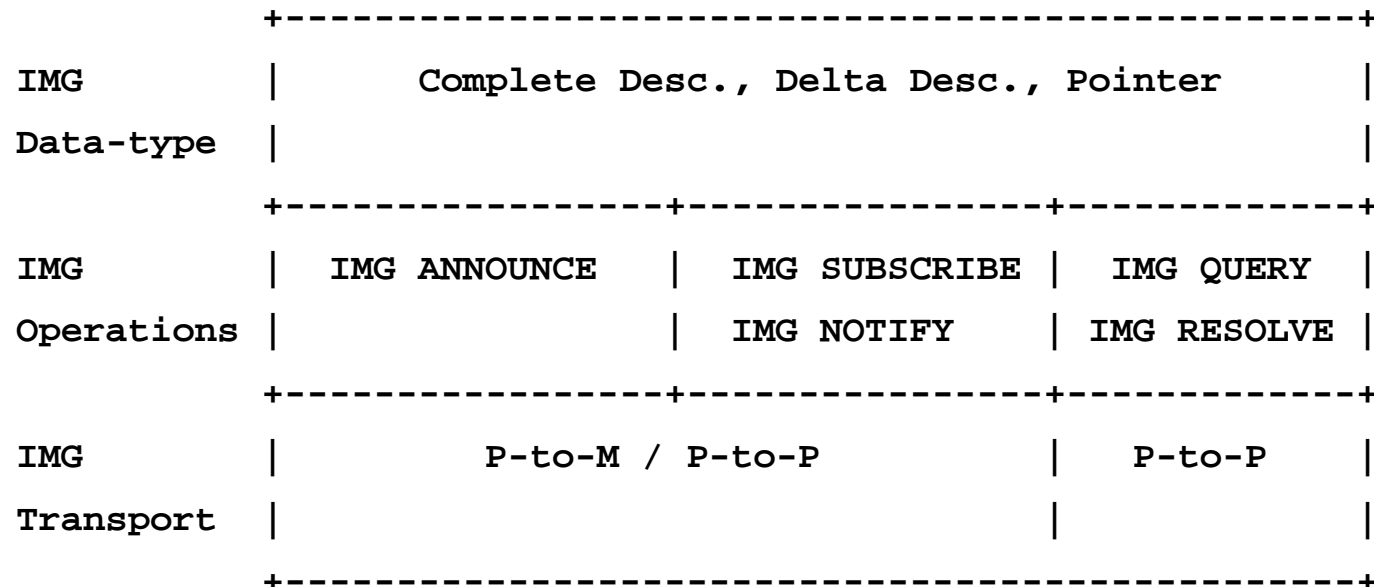
- Needed for improving scalability and customization
- HTTP, client-driven data transfer, very well deployed
 - Client can obtain data when necessary
 - Polling to keep up-to-date consumes resources everywhere
 - Server-driven update is not provided
- SIP Event Notification, point-to-point
 - Notification for server-driven update (also client-driven)
 - Subscribe + notification (sync + async.)
 - Subscribe-notify model enables customization
 - "IMG-application" of SIP would need specifying for IMG payload(s)
- Any other great ideas...?

Scalability

- Same data for small to massive groups and efficient handling of very large quantities of data in the system
- SAP doesn't scale well to the current Internet (number of media sessions)
- HTTP doesn't scale well to extreme numbers of users
- One-size-fits-all seems impossible (anyone know better?)
- We want to be able to use more than one communication channel appropriate to the application and environment in question
 - unicast, multicast (and multiple of the same)
 - common data framing and identification (e.g. of 'blocks')
 - modular so diverse methods and connectivity still enables interop.
 - different amounts of data according to timeliness and efficiency needs:
 - pointer – just for signalling update existence
 - delta description – giving only the changes for 'blocks' of data
 - complete description – giving the changes along with the unchanged data

Flexibility

- We want it to be flexible
 - For scalability & interop. even with different delivery techniques
 - Modular so delivery protocols are exchangeable plugged-in
 - Enable but be agnostic to application-specific extensions
 - Independence of IMG operation and IMG Metadata
 - Common envelope for different app-specific metadata formats
 - Handle sender & receiver driven access



(not a protocol stack!)

Data Relationships

- Data blocks are inter-related
 - hierarchical
 - inheritance
 - grouping / categorization
 - e.g. into browsable / authorized service sets
- Must enable cross-referencing and relationship description
 - any opinions?

Security Considerations

- Security Issues
 - DoS attacks
 - Insertion of forged IMG information
 - Snooping of personalized IMGs - privacy
- Authentication and encryption on IMG information
 - Can be provided on one or more layers
 - ...by one or more entities in the IMG delivery chain
 - Proxies, aggregators, translators
- Make sure IMG breaks nothing and nothing breaks IMG (within reason):
 - E.g. MESP, ESP, AH, XML encryption, XML signatures, AMESP
- (Security Specifications are outside IMG scope)

Round-up

- We have a draft for requirements close to finalization
 - draft-nomura-mmusic-img-requirements-01.txt
 - questions for the group:
 - do we agree on what is there?
 - what is missing?
 - next steps: rephrasing, editing, consolidation
 - should be able to do WGLC soon
- We have a framework draft
 - draft-nomura-mmusic-img-framework-01.txt
 - more to do here:
 - user/content orientated use-cases
 - application of existing protocols into defined framework model
 - (explicitly state missing blocks?)
 - Next revision end-August

Thanks!!!

More Issues???