

Network coding and satellites

draft-kuhn-nwcrg-network-coding-
satellites-01

Difference with *-00

- Proposition of a generic notation for multi-gateway satellite
 - Blocks:
 - Network functions
 - Access gateway
 - Physical gateway
 - Name of generated data packets (per block)
 - BBFRAMEs, PLFRAMEs, etc.
- Not specific to NC but useful to clarify the notations in the rest of the draft
- Note for *-02 (more details on *-02 in last slide):
 - Important variability in SATCOM systems (see RFC 2760)
 - Using NC could be relevant when the channel capacity varies drastically (mobile end user, mobile satellite system, bad weather) – new research use-case for *-02

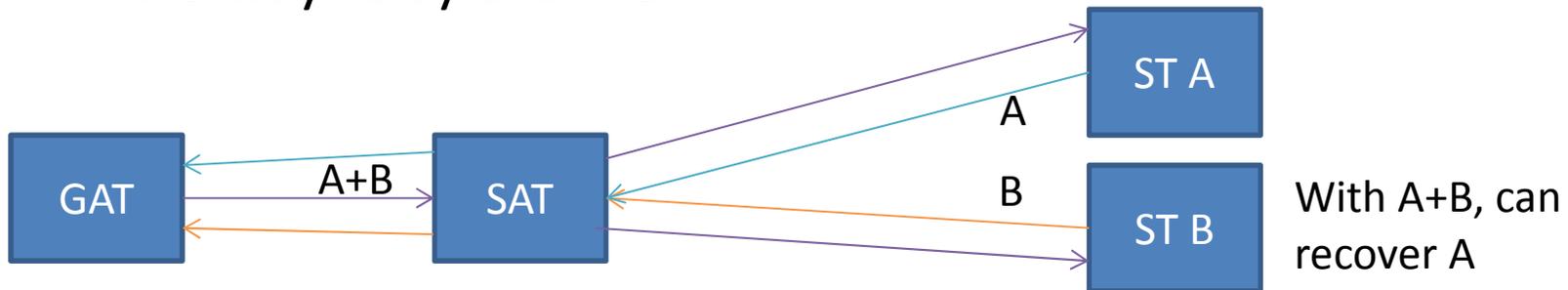
Difference with *-00

- Current usage of network coding in SATCOM
 - Exploitation of the taxonomy draft for mapping
 - Mostly FEC in the end
- Based on examples (video streaming – X1; PLFRAME formatting– X2)

	Upper Appl.	Middle ware	Communication layer	
	Source node	Network AL-FEC	Packet (UDP/IP)	PHY layer
E2E	X1			
NC				
IntraF	X1			
InterF				X2
SP	X1			X2
MP				

Difference with *-00

- Proposition of 4 use-cases for further using network coding in SATCOM
 - Two way relay channel



- Reliable multicast
 - Add redundancy to a multicast flow depending on what has been received
- Improving random access
 - Random access currently use FEC
 - Improved in random/deterministic access use
 - Increase reliability by mixing deterministic and random access
- Network coding and hybrid access
 - Multiple path management with network coding in MPTCP (redundancy in the terrestrial link, etc.)
 - Following up BATS project use case

Towards *-02

+ Add :

+ Further detailing SATCOM system

(what is relevant for supporting the identified use-cases)

(precise the architecture in which error/capacity variation occurs)

+ Further work on the mapping between taxonomy and NC usage in SATCOM

+ Further detail the identified use-cases and associated research interest

Are there other relevant use-cases (assess variable capacity e.g. mobility in end user or satellite system?)

+ Discuss deployment solutions

Link with NFVRG?

- Remove:

- Expected extended state-of-the art of the research on usage of network coding in SATCOM

- Lack of contribution at the moment

- May be re-introduced later on (if contribution)