

6QM inter-domain architecture

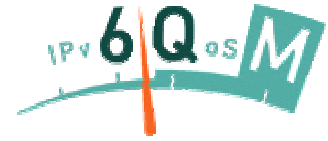
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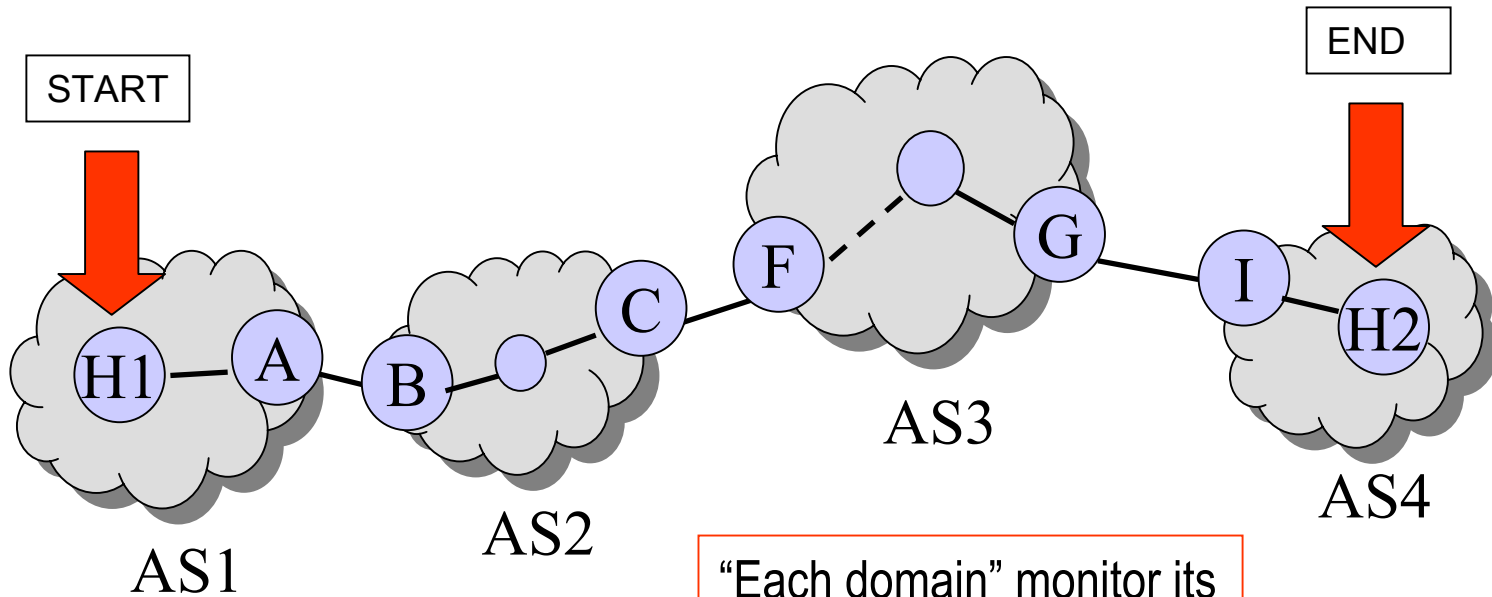
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OUTLINE



- Need for End-to-End measurements
- Requirements
- Monitoring configuration
- Data export
- 6QM architecture
- Components in detail
- Security (AAA)

E2E measurement



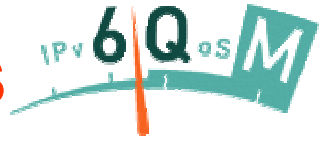
H1 only knows:

- the destination of the flow
- the management point of its domain

"Each domain" monitor its network and knows the next step...

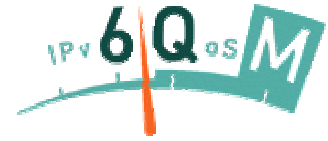
...but not details of the other networks

Inter-domain measurement requirements



- Common data format
 - How to compare data
 - **IPFIX**
- Configuration protocol
 - How to share data among ISPs
 - **SMS**
- Common measurement framework and common metrics
 - Measurement tools are often ISP specific
 - **OpenIMP and most of all common metrics**
- And of course: cooperation between ISPs!

Monitoring configuration



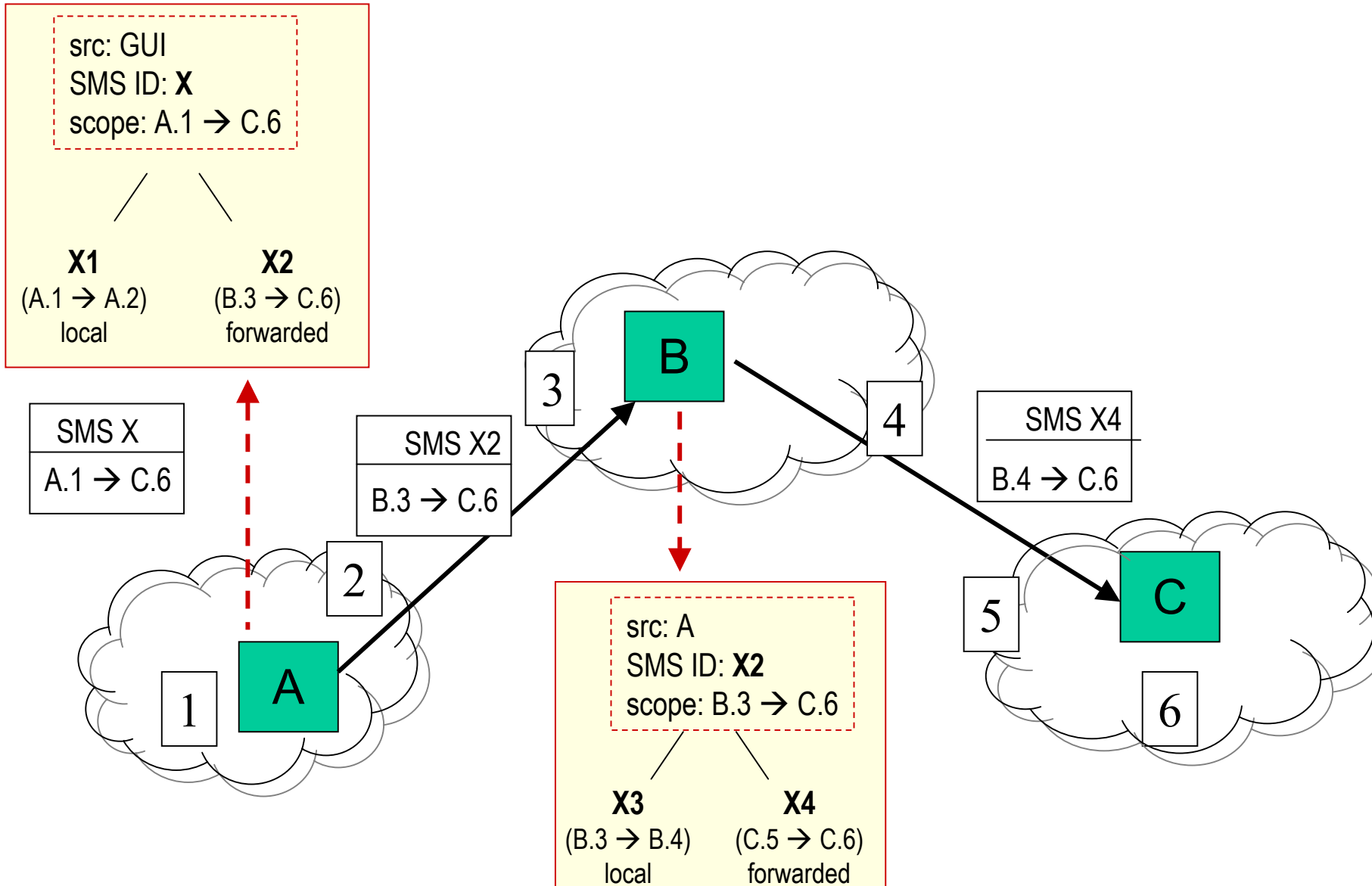
- Specification of Monitoring Service (SMS)
- The configuration process splits the document into a
 - Intra-domain SMS
 - Inter-domain SMS sent to “next hop”
- Different configuration granularity

SMS

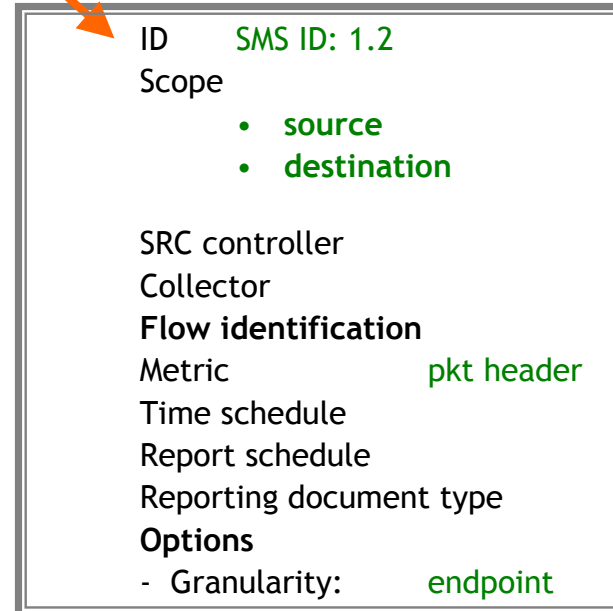
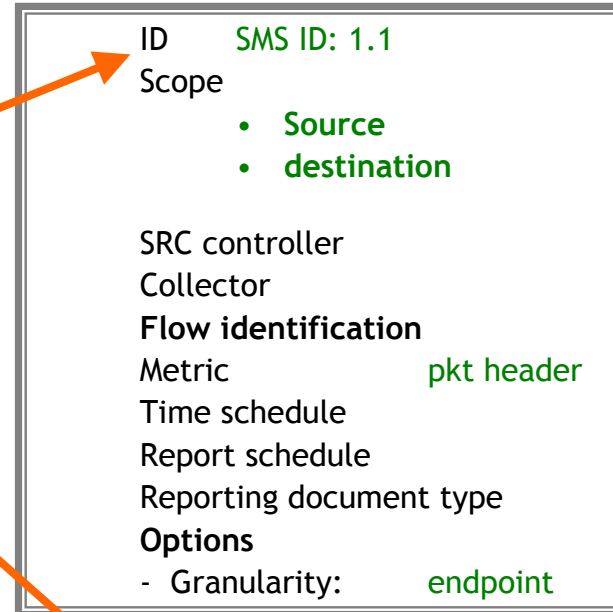
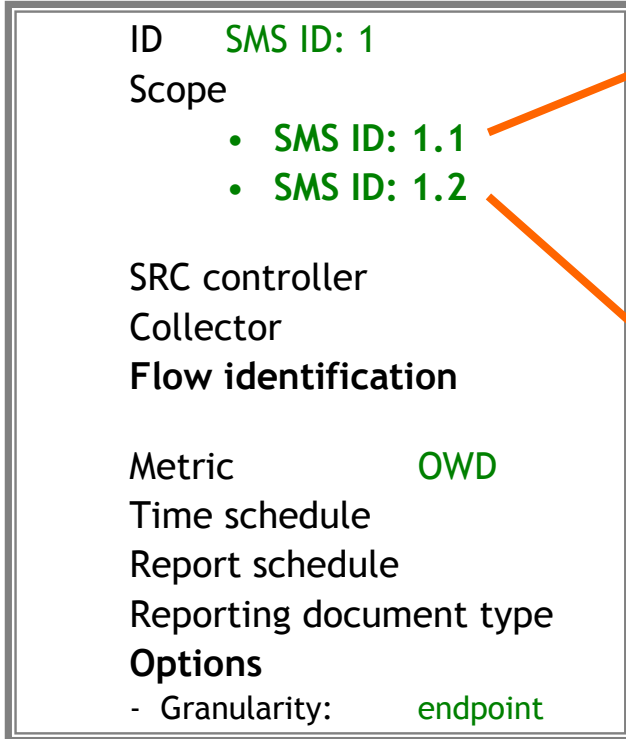


- ID
- Scope source - destination (*changing every time*)
- SRC controller
- Collector
- **Flow identification** filter (*Complex field*)
- Metric
- Time schedule
- Report schedule
 - Periodically
 - At the end of the monitoring process
 - In alarm mode (**notification threshold**)
 - Random mode
 - Real time mode
 - Custom mode
- Reporting document type {IPFIX template, Custom, ...}
- **Options**
 - **Sampling**
 - Method
 - **parameters**
 - Completeness
 - Refinement
 - Random shipment
 - Overload behaviour
 - Flow expiration (given time interval, FIN or RST bit in a TCP connection)

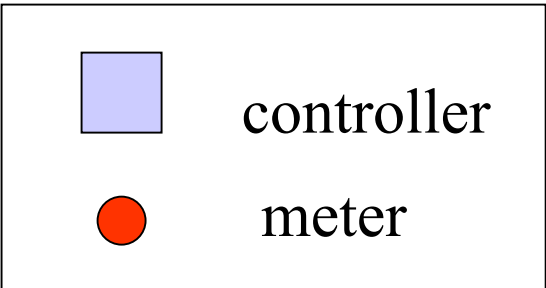
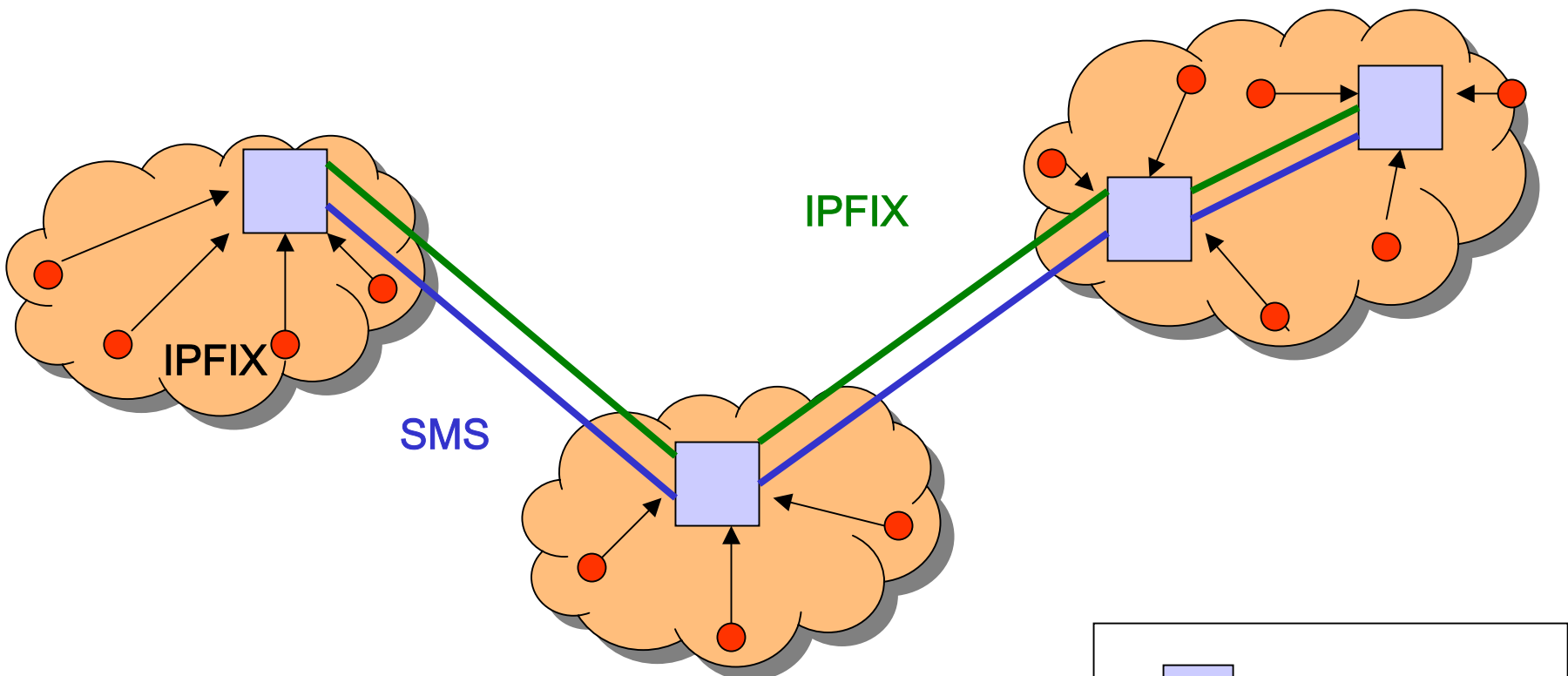
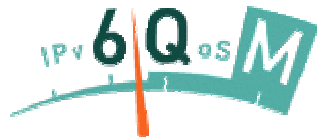
SMS splitting



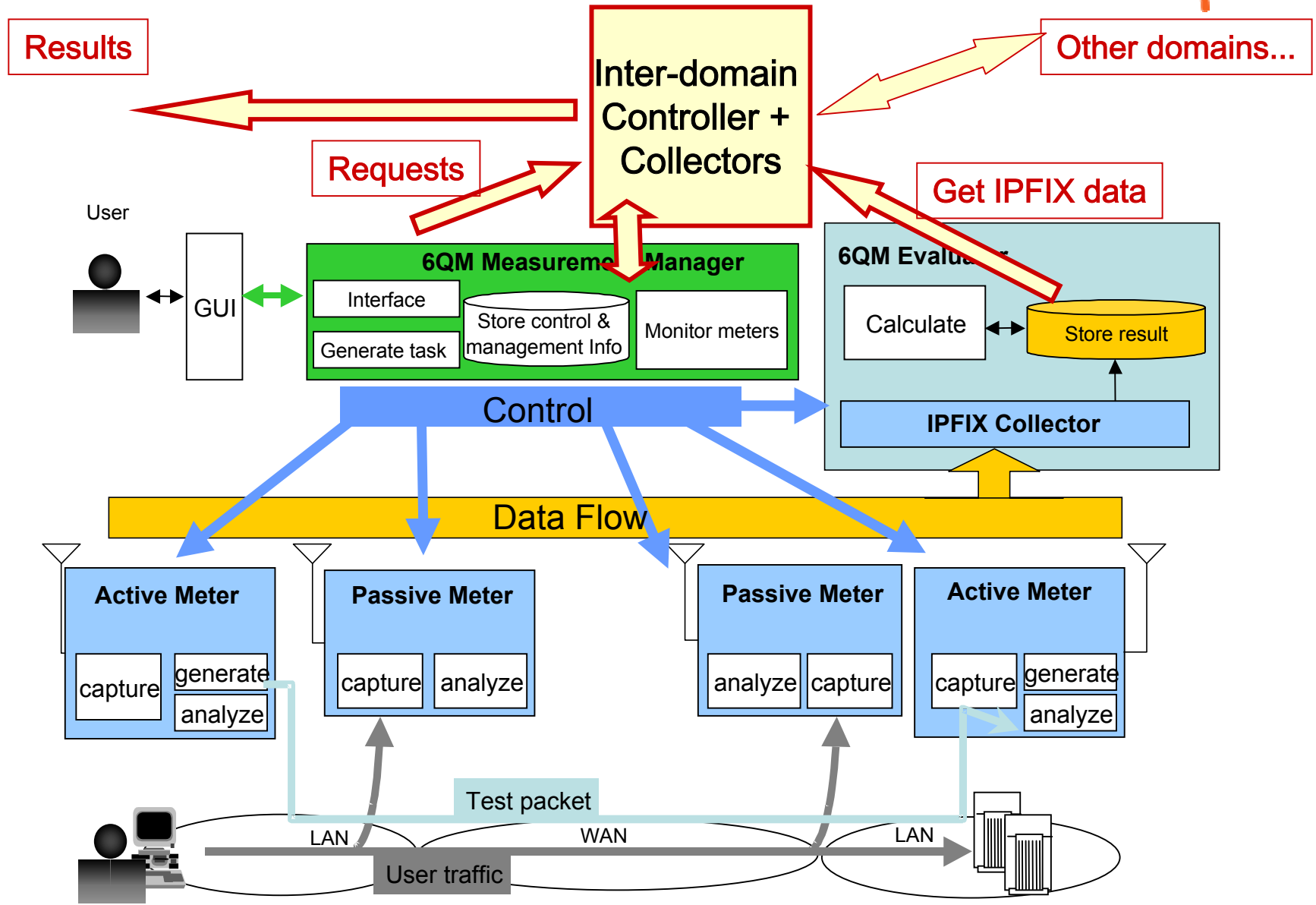
Nested SMSs



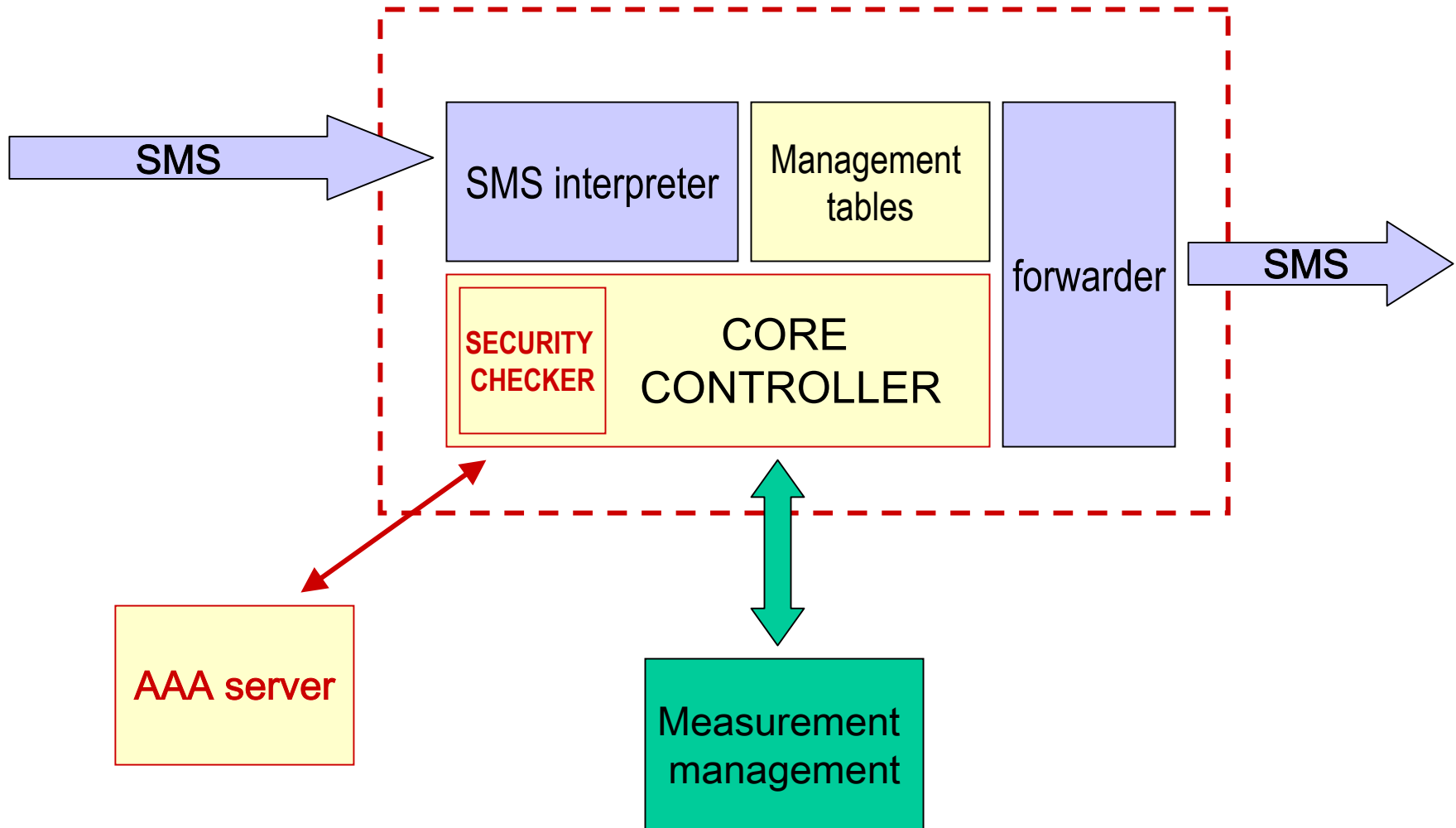
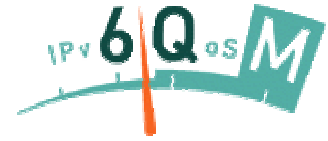
Data export



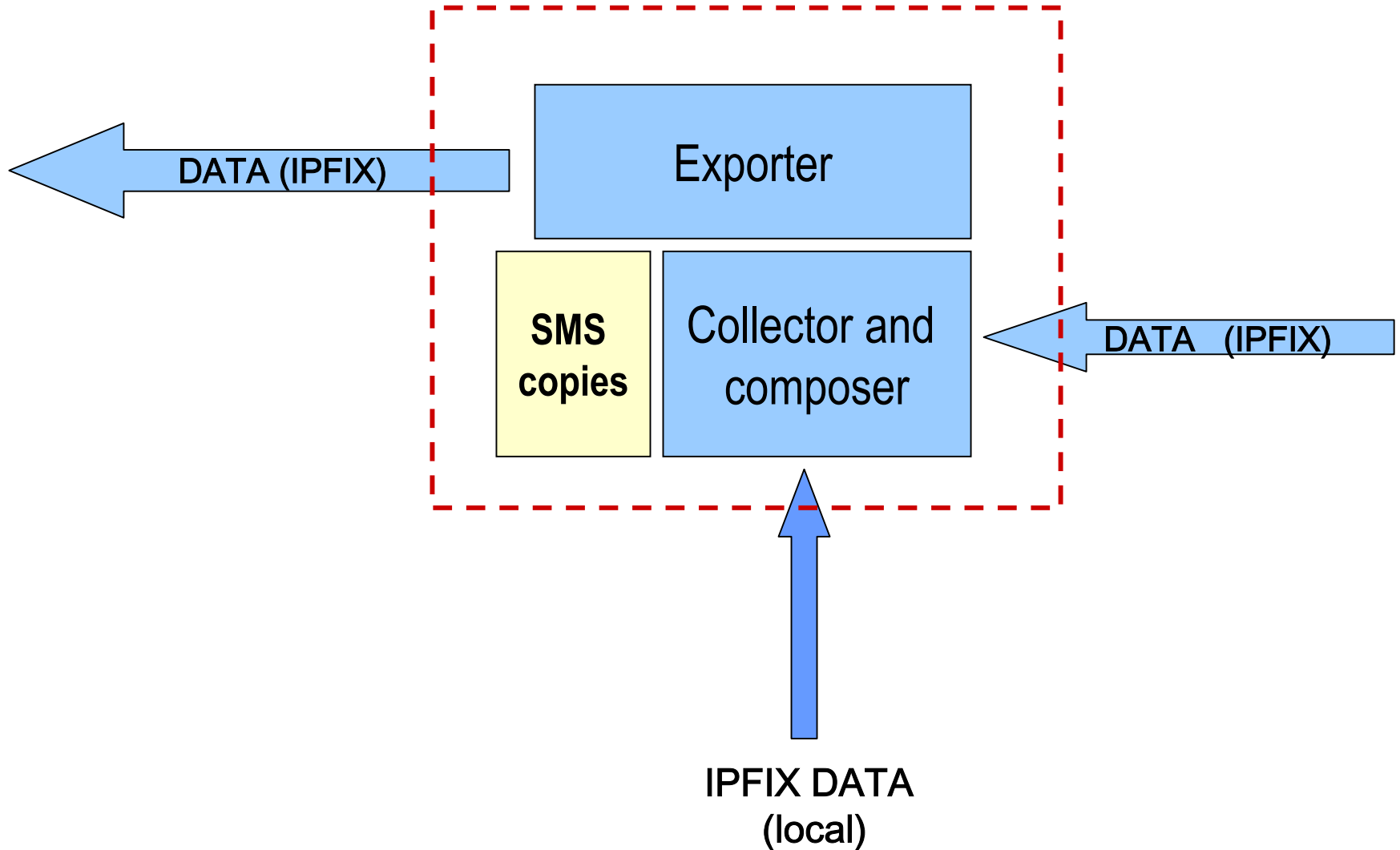
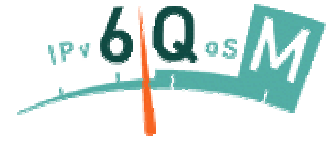
6QM initial functional architecture



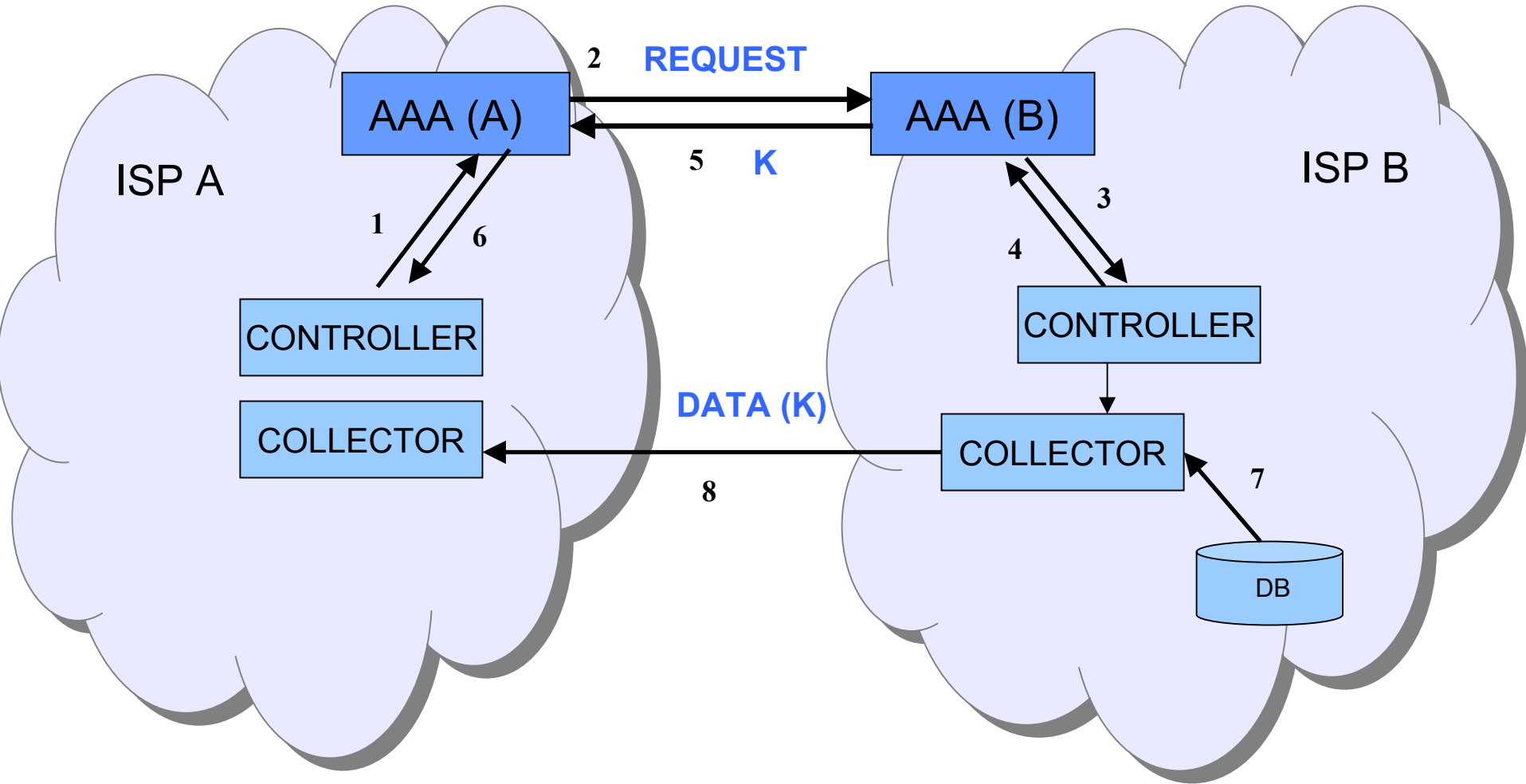
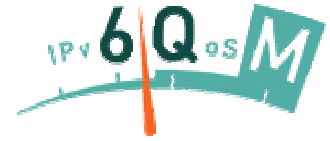
CONTROLLER

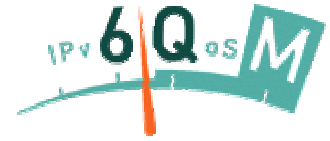


COLLECTOR



AAA





Thank you...