58th IETF Meeting - November 2003
IPPM Working Group

IPPM REPORTING MIB
&
ISP measurement infrastructure

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Agenda

- Change since Version 3 (1 slide)
- IPPM proxies usage for ISP monitoring
- Live demo of the IPPM proxy

Change since Version 3

- SMI subtype: INTEGER vs Integer32...;
- SMI UNITS: Clauses added;
- cleanup of DEFVAL values;
- historyTable Counter/index wrapping

IPPM proxies usage for ISP monitoring

- Data model & Architecture of the MIB
- Namespace & IPPM Metrics Registry
- Measures sharing and control
- Result aggregation & SLA monitoring
- Intra/inter domain correlation issues

Acronyms & Abbreviations

VACM: View Access-based Control Model

E2e: End to end; QoS: Quality of Service

MP: measurement point or probe

Foo, *Bar*: names of management applications

rootX: names of domain X MP manager

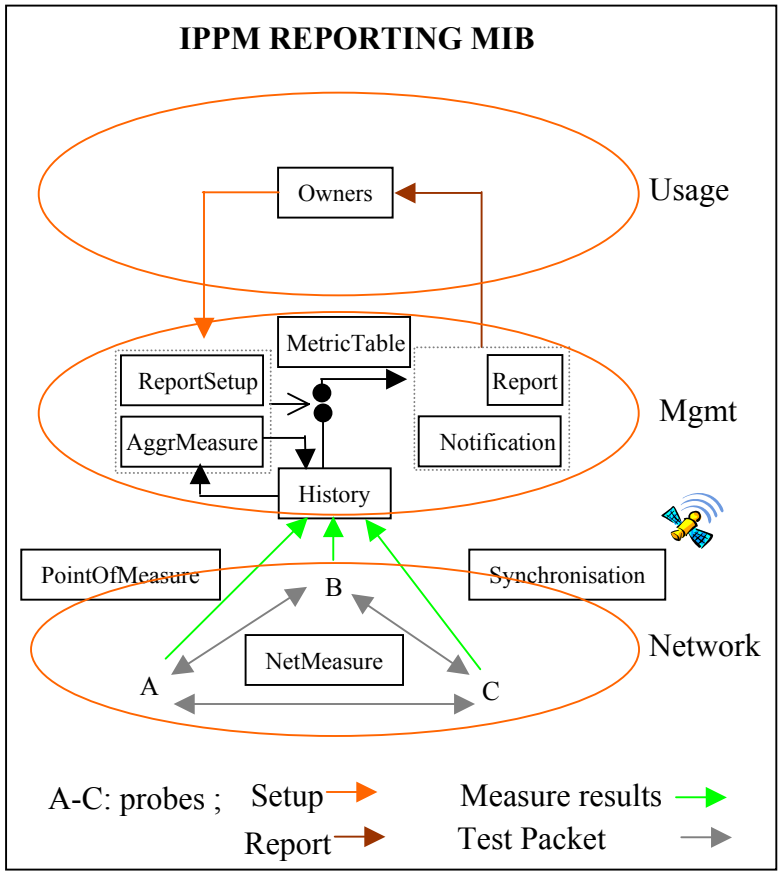
Net: ippmNetMeasureTable

Aggr: ippmAggrMeasureTable

Rpt: ippmReportSetupTable

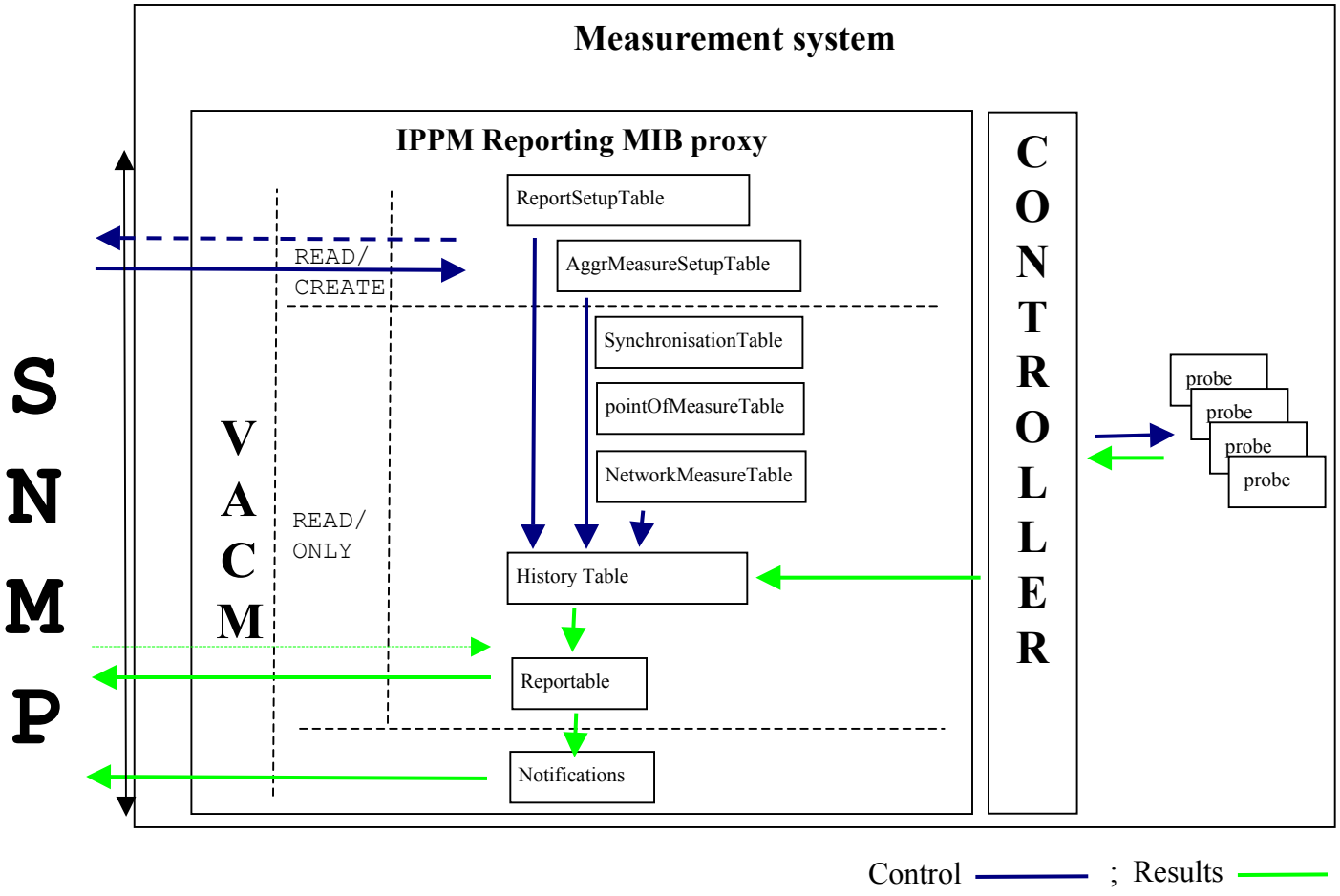
Data model

- PointOfMeasureTable
- NetMeasureTable
- SynchronizationTable
- HistoryTable
- MetricTable
- OwnersTable
- AggrMeasureTable
- ReportSetupTable
- ReportTable
- Notifications



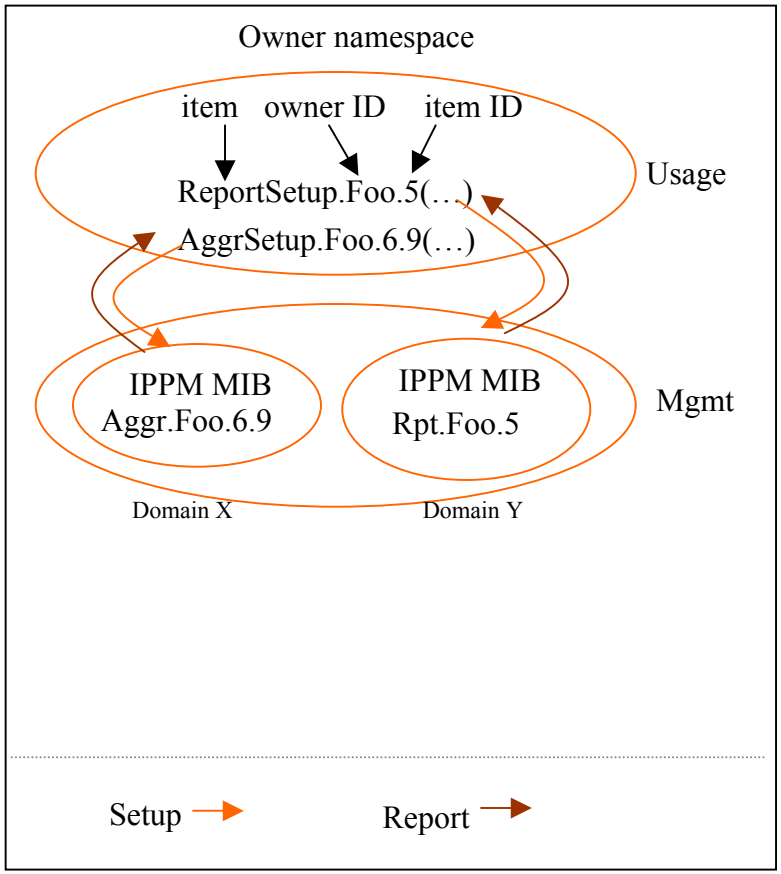
Managing Heterogeneity

Architecture of an IPPM Proxy



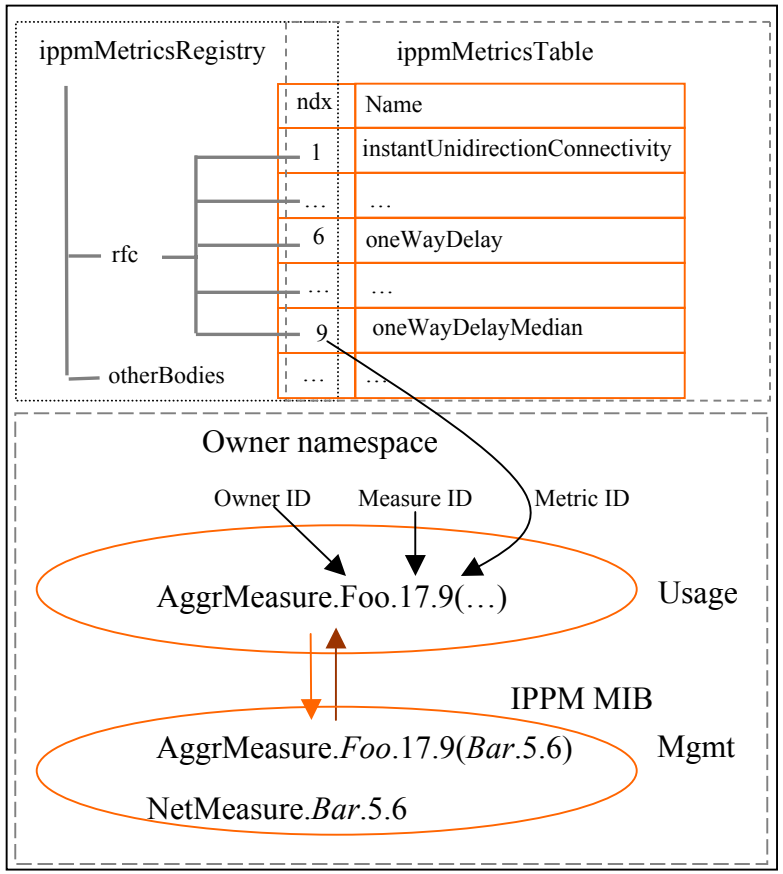
Owner namespace

- Owner assigned indexes:
  - Owner Name
  - + Owner instance Index
- Distributed naming:
  - Same identifier for a measure on IPPM proxies
  - For aggregated measure and setup
  - Interdomain unambiguous naming



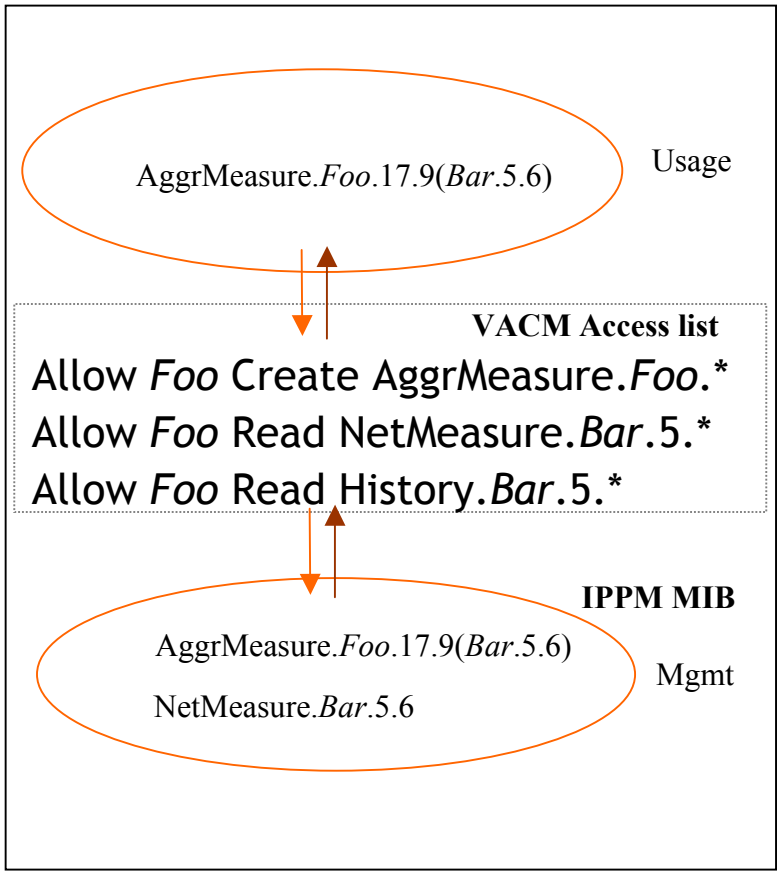
IPPM Metrics Registry

- IPPM Metrics Registry
  - IPPM metrics
    - RFC2678-2681
    - RFC3148, RFC3357
    - RFC3393 & RFC3432
  - Template for future IPPM metrics
  - Distributed metric measure index



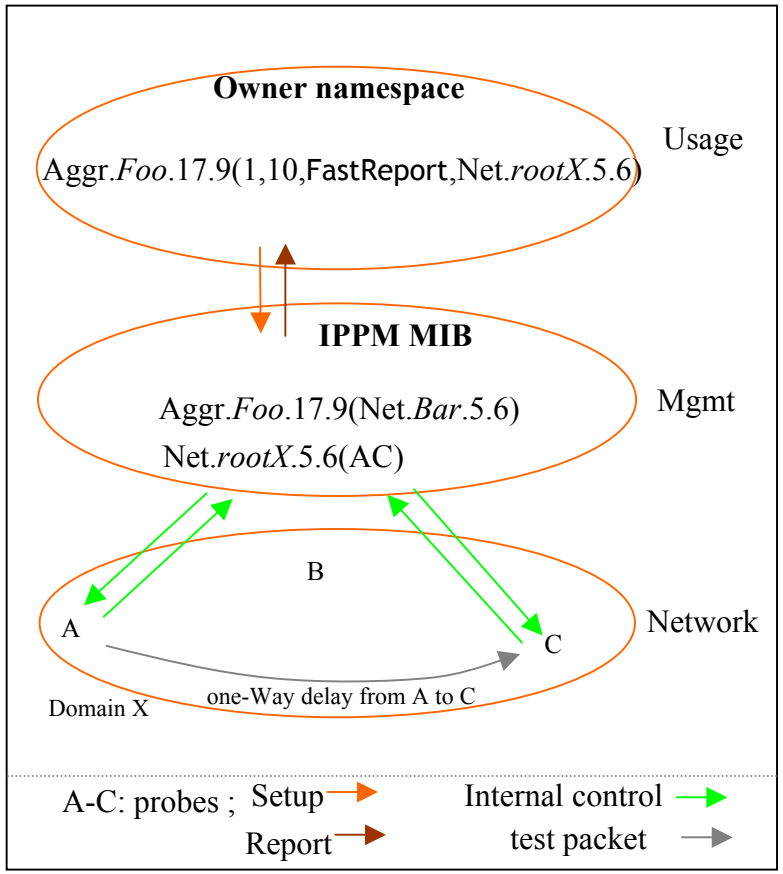
Measures sharing & control: VACM

- VACM: Access list
  - Who, from, session,action, object, instance
- Which sub tree an user can access ?
- Usage
  - Aggregation
  - Reporting
  - Sharing results
  - Measurement peering



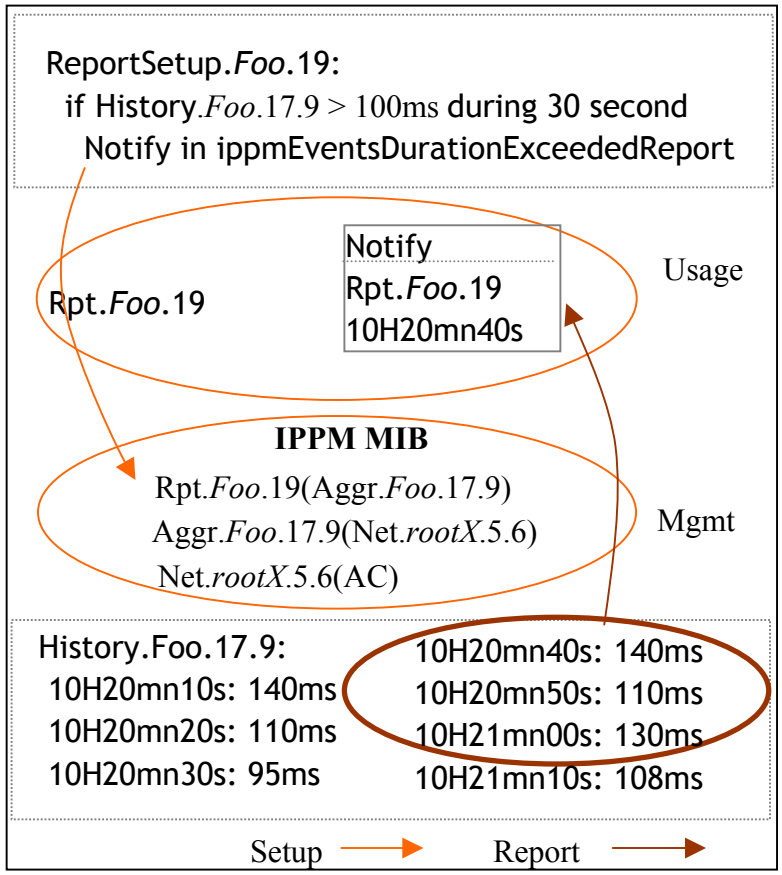
Aggregation: IppmAggrTable

- Aggregation of
  - Network measures
  - Aggregated measures
- Sharing measures
  - Name spaces
- Fast reporting
  - Maintenance
  - Troubleshooting



SLA monitoring: ippmReportTable

- Backgroup monitoring
  - Metrics thresholds
    - UpAndDown < > in out
  - Exceeded Duration
    - Errored periods
- Report
  - Locally or remotely
  - On event
  - On Measure cycles



Intra/inter domain correlation issues

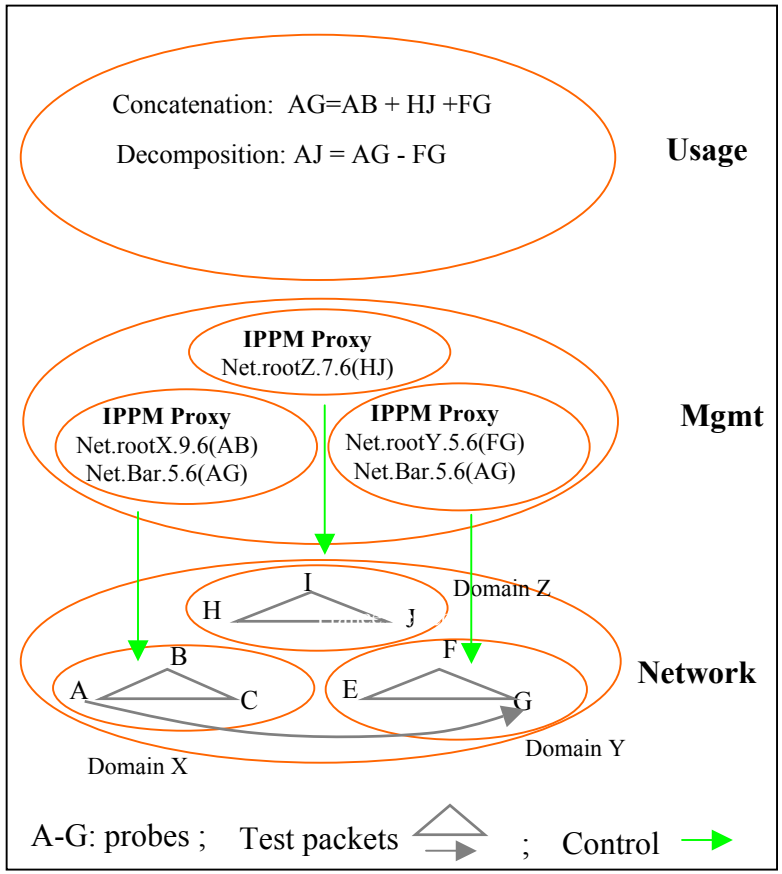
- Need:
  - Correlate intra and interdomain results;
  - Report;
- One solution:
  - Concatenation of intra domain measure
  - Decomposition of e2e inter domain measure
- Missing spatial metrics
  - Concatenation:

    AG=AB + HJ +FG

    Spatial.Foo.18.?(AG) =rootX.9 +rootY.5 +rootZ.13
  - Decomposition:

    AJ = AG - FG

    Spatial.Foo.19.?(AJ) =Net.Bar.5.6 - Net.rootY.5.6



Summary

- Dynamic aggregation
- SLA monitoring and smart reporting
- Secure measure sharing with VACM
- Pattern for e2e interdomain QoS monitoring
- Standardization of spatial metrics is required
  - Composition of measures (RFC2330,section 9)
  - Correlation of intra and interdomain measures
    - Decomposition of e2e measures

Summary

- IPPM MIB specification achieved
- Usage
  - Dynamic aggregation
  - SLA monitoring and smart reporting
  - Secure measure sharing with VACM
  - Pattern for e2e interdomain QoS monitoring
  - Standardization of spatial metrics is required
    - Composition of measures (RFC2330,section 9)
    - Correlation of intra and interdomain measures
      - Decomposition of e2e measures
- IPPM Proxy is implemented in industry