# Network Measurement Intent

draft-yang-nmrg-network-measurement-intent-01

https://datatracker.ietf.org/doc/draft-yang-nmrg-network-measurement-intent/

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# Major Updates from Version-00

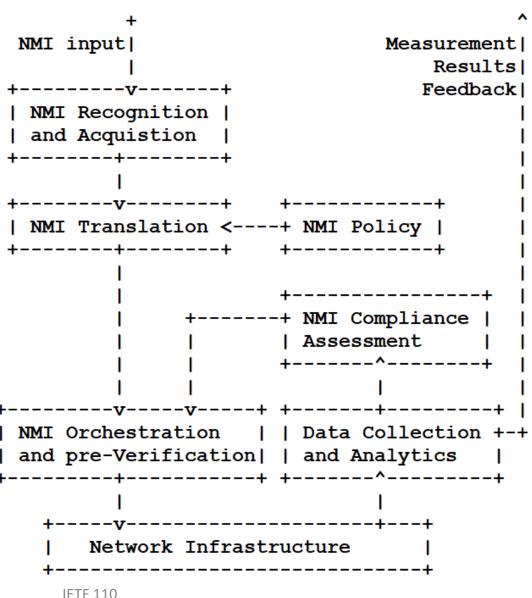Detailed flow of network measurement intent

Take network measurement intent in SLA as an example

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# Detailed flow

◆NMI (Network Measurement Intent)

➢the on-demand measurement of the network state based on the user/network operators' perceived intent of the network state .
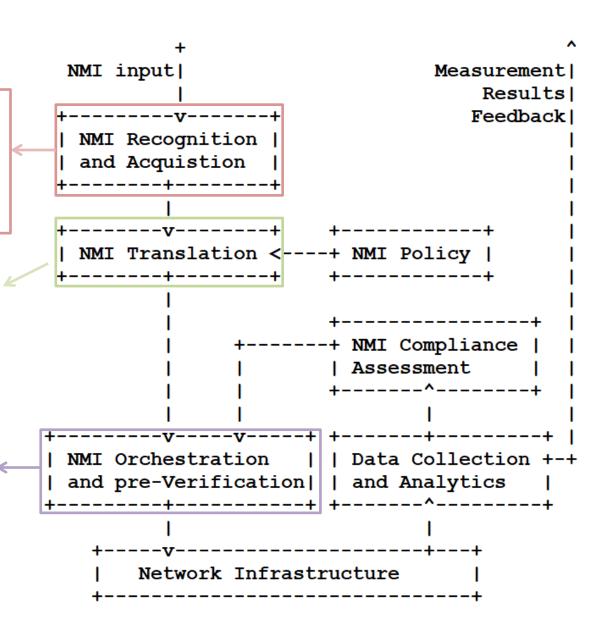
## The major components

•NMI Recognition and Acquisition

•NMI Translation

•NMI Orchestration and pre-Verification

•Data Collection and Analytics

• NMI Compliance Assessment

```
                +                                              ^
       NMI input|                             Measurement|
                |                                Results|
       +--------v-------+                       Feedback|
       | NMI Recognition |                              |
       | and Acquistion  |                              |
       +--------+-------+                               |
                |                                       |
                |                                       |
       +--------v-------+      +-------------+          |
       | NMI Translation <----+ NMI Policy |          |
       +--------+-------+      +-------------+          |
                |                                       |
                |            +-----------------+        |
                |    +-------+ NMI Compliance |        |
                |    |       | Assessment      |        |
                |    |       +-------^---------+        |
                |    |               |                 |
       +--------v----v-----+ +-------+---------+ |
       | NMI Orchestration  | | Data Collection +-+
       | and pre-Verification| | and Analytics  |
       +--------+----------+ +-------^---------+
                |                    |
       +-----v---------------------+---+
       |   Network Infrastructure      |
       +-------------------------------+
```
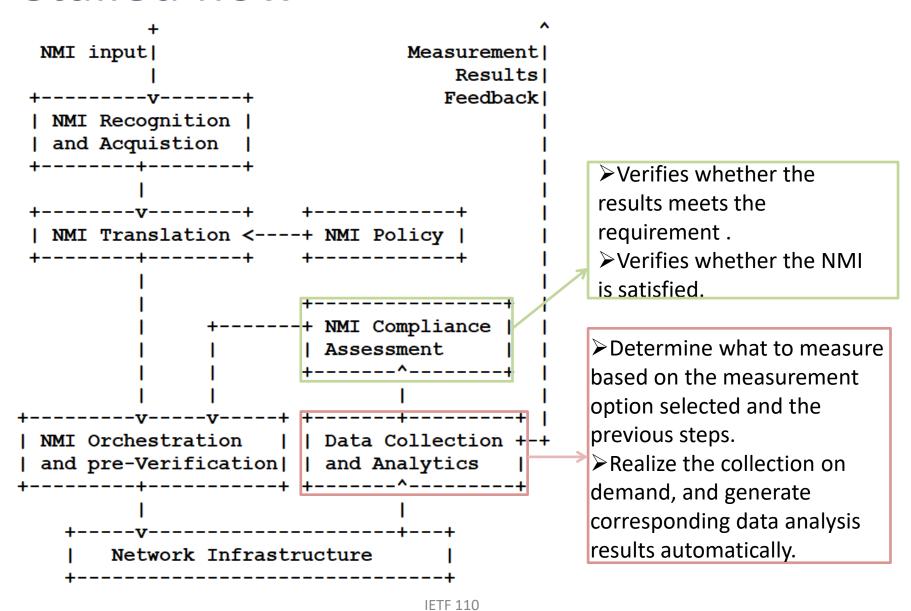
# Detailed flow

> Allow users to express the NMI of network performance in a variety of interactive ways to ensure the accuracy of the identification of the NMI.

> Converts NMI to actions and requests for the network.
> Determine the content to be measured

> Determine the measurement scheme according to the required measurement content and equipment support degree
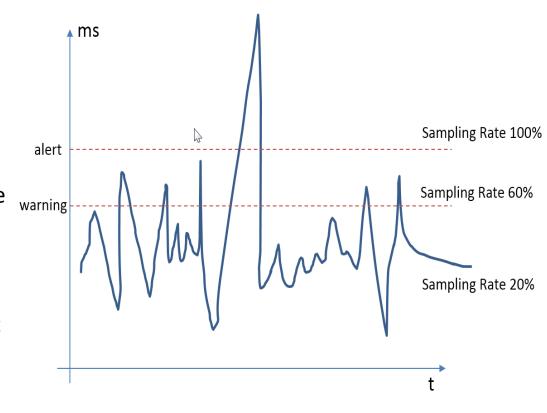> Pre-verifies whether the measurement scheme is feasible

```
                          +                                    ^
            NMI input|                      Measurement|
                     |                         Results|
         +---------v-------+                   Feedback|
         | NMI Recognition |                          |
         | and Acquistion  |                          |
         +---------+-------+                          |
                   |                                  |
         +---------v-------+    +------------+         |
         | NMI Translation <----+ NMI Policy |        |
         +---------+-------+    +------------+         |
                   |                                  |
                   |              +---------------+    |
                   |   +------+ NMI Compliance |    |
                   |   |      | Assessment     |    |
                   |   |      +-------^--------+    |
                   |   |              |             |
   +---------v-----v-----+ +-------+---------+ |
   | NMI Orchestration   | | Data Collection +-+
   | and pre-Verification| | and Analytics   |
   +---------+-----------+ +-------^---------+
             |                     |
   +-----v--------------------+---+
   |   Network Infrastructure     |
   +------------------------------+
```

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# Detailed flow

```
                +                          ^
NMI input|               Measurement|
         |                    Results|
+--------v-------+           Feedback|
| NMI Recognition|                   |
| and Acquistion |                   |
+--------+-------+                   |
         |                           |
+--------v-------+   +------------+  |
| NMI Translation <----+ NMI Policy |  |
+--------+-------+   +------------+  |
         |                           |
         |        +------------------+|
         |  +-----+ NMI Compliance | |
         |  |     | Assessment     | |
         |  |     +-------^--------+ |
         |  |             |          |
+--------v----v-----+ +-------+--------+ |
| NMI Orchestration | | Data Collection +-+
| and pre-Verification| | and Analytics  |
+--------+----------+ +-------^--------+
         |                    |
    +----v--------------------+---+
    |   Network Infrastructure    |
    +-----------------------------+
```

> Verifies whether the results meets the requirement .
> Verifies whether the NMI is satisfied.

> Determine what to measure based on the measurement option selected and the previous steps.
> Realize the collection on demand, and generate corresponding data analysis results automatically.

# Concrete Example -Threshold Settings

◆Take network SLA performance index -- time delay measurement as an example

➢Set different thresholds for network delay in advance

a) When the delay value is below warning, the network is normal and the business is normal.

b) When the delay is between warning value and alert value, the network fluctuation is abnormal, but the business is normal.

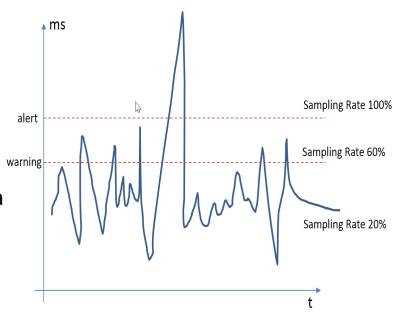c) When the delay exceeds the alert value, both the network and business are abnormal.

ms

alert — — — — — — — — — — — Sampling Rate 100%

warning — — — — — — — — — — — Sampling Rate 60%

Sampling Rate 20%

t

# Concrete Example – Measure strategy

◆Adopt different measurement strategies for the delay under different thresholds

■Exceeds the alert value:

➢ passive measurement requires 100% sampling of business data

➢the transmission frequency of active measurement is modulated to the maximum

■Exceeds warning value  and lower than alert value:

➢passive measurement samples 60% of business data

➢the transmission message frequency of the active measurement is adjusted to the median value

■Less than warning value:

➢passive measurement data is sampled at 20%

➢active measurement message frequency is adjusted to the lowest

# Concrete Example – Specific Process

◆The concrete steps of SLA measurement intent are as follows:

■NMI Recognition and Acquisition:

➢ Recognize SLA measurement intent

➢Identify business requirements and performance metrics by interacting with users

■NMI Translation:

➢Combine the SLA measurement intent with the measurement policy in NMI Policy

➢Output the executable measurement policy

■NMI Orchestration and pre-Verification:

➢Arrange the measurement strategy into the specific configuration and policy execution time of each device in the tested network

➢Modify the configuration according to the degree of the device

➢Ensure the configuration can be executed

■NMI Compliance Assessment

➢Notify the NMI Orchestration and pre-Verification module to modify the execution time of the policy

➢Update the measured results to the delay history database to improve the accuracy of delay prediction

# Next Steps

- To discover more concrete examples of network measurement intent

- To incorporate this case into the IBN use case.

- **Looking forward to the comments, suggestions and questions.**

**Thanks!**