

NGFI RMIX traffic profile

Jouni Korhonen
Broadcom

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**IEEE 1914 WG
NGFI
Jinri Huang – huangjinri@chinamobile.com**

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Author(s):

Name	Affiliation	Phone [optional]	Email [optional]
Jouni Korhonen	Broadcom		Jouni.korhonen@broadcom.com

Purpose

- For the generic RoE enabled switch located in an NGFI network, a standard classification of the traffic profile is required to define the throughput performance of the networking node.
- A standard classification greatly helps device manufacturers to design for specific node performance and customers to verify the claimed networking node/network performance.
- Follow the example of IMIX (Internet Mix) as described in IETF RFC 6985 and the well-known "Simple IMIX" profile (*), which have had a great success in other deployment scenarios.
- Define a standard **NGFI RMIX profile** classification guideline as a part of the IEEE P1914.1 specification, which is targeted to NGFI networks transporting a **combination** of "**radio traffic**" and "**Internet traffic**".

Assumptions for the initial profile

- Radio traffic is fixed size packet transfers i.e., no mixing of variable packet sizes for radio traffic.
- Radio payload sizes defined as 256, 384, 512 and 1024 octets.
- “Backhaul” and C&M traffic also exists in the switch, which are generally variable packet size -> IMIX part of the profile.
- Maximum encapsulation of 90 octet to be supported:
 - Current L2 and future L2.5 and L3 encapsulation overhead.
- For IMIX use one of the the well-known profiles (*):
 - The “simple profile” defined as 64:7 + 570:4 + 1518:1 octet packets
- **RMIX = Radio Traffic + IMIX**

NGFI RMIX profile proposal

Variable	Data Set
Radio Traffic Load	90%
Radio Packet Sizes	{256, 384, 512, or 1024} payload octets
IMIX Load	10%
IMIX Packet Sizes	{64:7, 570:4, 1518:1} octet packets distribution

- Radio packet sizes proposed are the payload only.
- E.g. 256 octet packet, with minimum L2 header is 18 octet encapsulation + 8 octet RoE header + 256 octet payload + 20 octet IPG (includes preamble).
- The IMIX profile packet distribution through a node/over a link is 7x64, then 4x570 and then 1x1518 octet packets + 20 octet IPG per packet..

About RMIX profiles

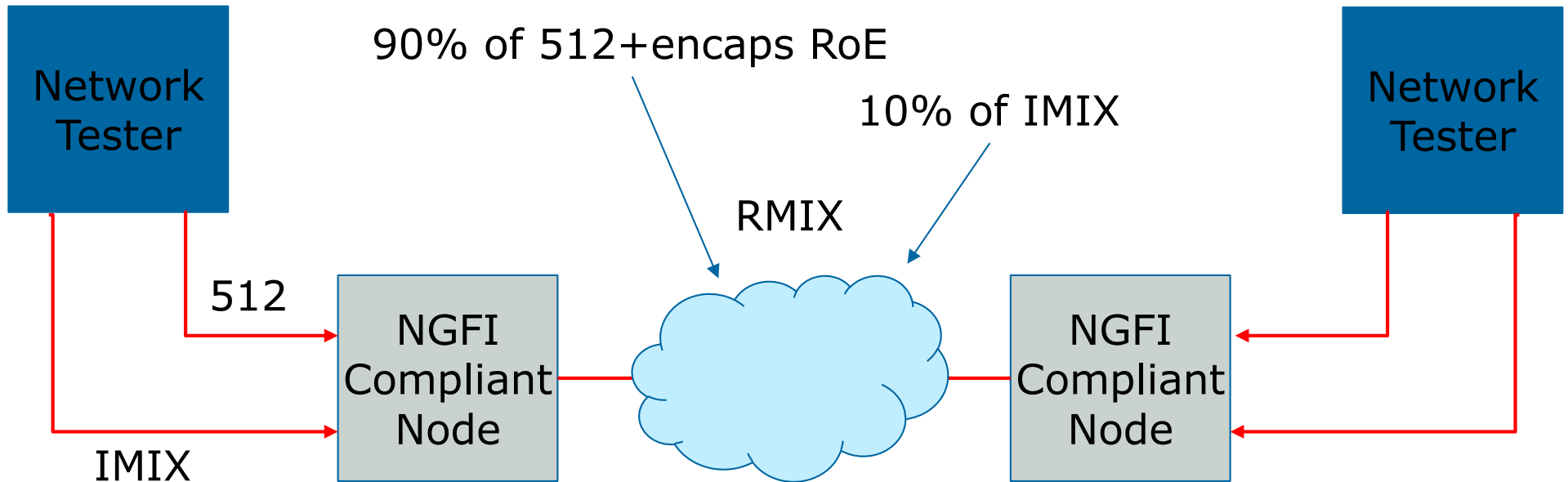
- The “100% load” in a profile means the total traffic you see on wire or going through your NGFI compliant networking device:
 - With the given RMIX load the end to end system and each intermediate node has to meet the other 1914.1, 802.1CM, etc specified requirements.
- For example for a 50Gb/s RMIX load:
 - One would see 45Gb/s of RoE and 5Gb/s of IMIX traffic..
 - It does not matter whether the link is 50G or 100G, or if the networking device has 300G or 1Tb of switching capacity.
- RMIX profiles are simple tools to test both network and devices.
 - Also simple to implement in tester devices.
 - Useful for silicon & system vendors as well as for operators.

Extensibility of profiles

- Current proposal defines a simple 90%:10% RMIX baseline that is targeted for single split option radio traffic.
- However, profiles are extensible:
 - Future amendments can add different RMIX load distributions and assume different traffic characteristics e.g., bursty and/or VBR traffic characteristics.

Example use of the NGFI RMIX profile

- Assume 512 octet radio traffic payload.
- Network & nodes able to cope with RMIX traffic profile.
- Latency/synchronization requirements tested and has to be met when RMIX profile is used in a testing set up/real deployment.



Next steps

- Approve the initial simple NGFI RMIX profile to be included into the IEEE P1914.1 specification:
 - Can be informative..
- **Keep it simple!** Can be evolved/refined later but start with a very simple and straight forward profile.
- Motion for a base line..

Motion #3

- Agree to add an **RMIX profile** Annex to the IEEE P1914.1 standard using as a baseline for the content specified in tf1_1704_korhonen_rmix_1.pdf side 6.
- Mover: _Jouni Korhonen_
- Seconder: _Richard Tse_
- Yes: 10 No: 0 Abstain: 1 (technical motion needs $\geq 2/3$)