NGFI requirements proposal

For low frequency band scenario only;

1, It is recommended for NGFI transport network to support the following line rate for the client side.

- 10Gbps
- 25Gbps

Reason: Option 2 has been adopted as standard functional split b/w CU and DU; Meantime, 3GPP began discussion of standardization for lower layer split. In other SDOs, some lower layer split options have been chosen. For example, for eCPRI ~~support Option 7-1 and Option 7-2, for which~~ the line rate is around 25Gbps.

2, Bandwidth consideration:
Planning of the bandwidth capacity for NGFI transport network is a complex issue. It depends on many factors such as the transport network scale, the wireless nodes (i.e. The number of RRU, DU etc.) it is carrying, the type of applications (e.g. uRLLC, eMBB etc.), the adopted functional split options, the adopted wireless technologies (e.g. Whether to support CoMP or not). It is our view that the bandwidth issue is more than a network provisioning/planning issue and therefore, it is not specified in the standard. Only line rate for the client side is specified.

However, the NGFI transport network should be scalable enough so that the capacity expansion is easy to achieve, for example, by adding new processing cards.

3, Flexible support for various topologies
The NGFI NW should support various topology including ring, star, daisy chain, and MESH and so on. In particular, ring topology shall be supported for protection purpose. In addition, multi-level ring structure should be supported for regions of large area.

4, Multi-RAT support
The NGFI NW should be transparent to the FH data it carries and therefore support transport of various FH data including e.g. CPRI, eCPRI and so on.

5, Single-fiber Bi-direction technology should be supported in the NGFI NW in order to further reduce the usage of fiber, which is particularly important for the area with severe fiber deficiency.

6, Protection
The NGFI NW should provide protection functionality, including ring protection and linear protection. In particular, the following protection modes should be supported: 1:1~~, 1+1, 1:N~~

The protection should be able to be triggered by either command/instruction from O&M systems, or by triggering events such as link break-down.
The protection reversion time should be less than xxms.
The protection link should be able to provide the same QoS as original working link.

7, The NGFI NW should be able to support networking with the following parameters.

The NGFI NW should be able to support a CU-DU link of up to 100 km.

It is recommended that the number of NGFI II nodes in a ring be less than ~~6~~8;
It is recommended that the number of NGFI I nodes in a ring should be less than ~~12~~10
(Note: a NGFI II node is a node in an NGFI II network b/w DU and CU while NGFI I node is a node in an NGFI I network b/w DU and RRU)

8, Outdoor type equipment should be supported for NGFI I node. The working temperature should be from ~~-45~~-40 to 85 Celsius.

9, Capacity
When NGFI I is used to connect a DU and multiple RRUs, the NGFI I should be able to support 30~~-90~~ carriers/RRUs ~~(for below 6GHz scenario)~~.
When NGFI II is used to connect a CU and multiple DUs, the NGFI II should be able to support 300-600 DUs.

Note that from the requirements above, the scale of a wireless network adopted NGFI transport could be decided.

Motion #xx: to agree on the requirements as listed in "tf1_1709_huang_proposals on NGFI reuqirements.pdf" and incorporate them into the spec.

Moved by:
Seconded by: