**IPBB & IGW Technical Specification**

1. **IPBB Main technical requirement**
2. **CRS replacement:**

Existing 2 CRS acting as P routers should be swapped by 2 x NCS 5504

Each NCS55004 should be equipped with:

* Redundant Route Processors
* Redundant Fabrics
* Redundantly Power Supply
* Two line cards NC-55-32T16Q4H-A

This router should cater for a total of 20 x 1Gbps ports and 16 x 10 Gbps ports

1. **ASR9K upgrade:**

Existing ASR9Ks at Justice MPT should be upgraded by the addition of one Line Card in each router. The new LC should cater for 8x10Gbps along with room for 10Gbps ports future expansion

Note: 2 ASR9K are installed at Justice MPT, both are using A9K-RSP880-SE with Cisco IOS XR Software, Version 6.2.25.

1. **C6500 switch 10G Line cards:**

Existing 8 x 6500 switches are equipped with one 10G Line card in each with PID **WS-X6908-10G.** Given this card has reached its end of support MIC2 needs to purchase 2 new 10G Line cards **C6800-16P10G** along with their needed support in order to be used as spares in case any of the current **WS-X6908-10G** fails and needed replacement.

Noting that the supplier should guarantee the inter-operability with the current chassis and currently installed Line cards along with providing the needed support in case the swap between the old and new card is needed.

The 2 new line cards should be provided along with 8 x 10Gbps MM SFPs for each card.

Current 6500 model is C6509-E, equipped with SUP-2T (Supervisor Engine) and Distributed Forwarding Card (DFC) v4.

1. **IGW Main technical requirement**

8 new IGW routers are need. 2 in each of the 4 core sites.

New Firewalls for Jdeideh IGW and Switches.

For the new IGW technical requirement, refer to Appendix 4\_Bill of Quantity, “New IGW” sheet.

1. **Support for current hardware and software**

3 years supports on all currently installed equipment in both IPBB and IT networks.

The support period should be 3 years starting from Purchase Order issuance date.

For the details related to the installed equipment, part numbers, serial numbers and current support coverage date, refer to Appendix 4\_Bill of Quantity sheets:

* Current IPBB items
* Current IPBB SFPs
* Current IT Cisco items
* Current IT non Cisco items

1. **General requirement**

* 3 years support for all above new HW. The warranty period starts after minimally 50% of total site’s PAC issuance by MIC2, conditional to the completion of the project as per the set deadline in the RFP
* Support coverage is 24 hours a day, 7 Days a week including holidays.
* All product and Software versions to be the latest.
* New HW/SW that follows a license subscription model should be offered with at least 3 years license period.
* Guarantee of a minimum 5 years before reaching the end of support date.
* Only DC power supply is to be provided for the IPBB part.
* Health check Assessment: to audit all configuration changes that occurred on the network and validate it with Cisco Best Practices, Health check to be conducted twice per year.
* Vendor should propose standard acceptance procedures for the offered solution, to be reviewed and validated by MIC2.
* Vendor shall ensure that the activities related to the scope of this RFP will have no or minimal impact on the current network traffic.
* The Vendor is fully responsible to replace any damaged network devices occurs during the dismantling/upgrade process.
* The Vendor shall be responsible for delivering the equipment to site from their own warehouse
* Passive equipment along with their implementation (cabinets, patch panels, patch cords, ODF,…) should be included for all above requested ports
* Implementation, integration and service reshuffle should be included.
* The Vendor shall be responsible for providing the warehouse for the equipment to be installed throughout the complete project duration
* All software updates/releases should be included, delivered and installed once available during the support period.
* The PIP time line is completed with the minimum amount of time taking into consideration the latest possible start and finish times for project activities, the uncertainties, the risks and assumptions (Less than 4 months from PO issuance)
* The offer should include a responsibility matrix clearly splitting the role of the bidder and the operator
* The vendor’s Implementation proposal should cover but not limited to the following: installation, dismantling, swapping, traffic migration, configuration, integration, interoperability…
* Equipment delivery time shall be less than 60 days from PO issuance
* Proposal includes satisfactory minimum number of resources with their qualifications & proposed organization structure during implementation and support, which is subject to MIC2 approval
* On-site visits (environmental check and preventive maintenance to be conducted twice a year)
* Spare Parts Management: Vendor shall insure hardware availability in Lebanon for all type of equipment and to handle the repair process
* Trainings for NCS 5504, NCS 55A2, Fire Power and Segment Routing should be included in the offer (each course should be delivered in 2 sessions)
* Knowledge transfer and provide the appropriate training program to have MIC2 engineers acquiring the needed knowledge and expertise and receiving the relevant hands-on knowledge transfer
* For IPBB part only:

All new optical 1Gbps SFP should be SM 1310nm LC

All new 10Gbps should be MM 850nm LC

Extra SFPs to be included in the scope (on top on the above that are part of the new LC):

* + 20 new 10Gbps MM 850nm LC Short range (compatible with both 9Ks and 903s)
  + 20 new 10Gbps SM 1310nm LC Long Range (compatible with both 9Ks and 903s)
  + 100 x 1Gbps MM SFP
  + 10 x 10Gbps MM SFP for the existing 6500

1. **SLAs and KPIs:**
   * System availability time [%] >99.999%
   * For P1 (Critical/Emergency) incidents, response time 1 hour, restoration time 3 hours, and resolution time 6 hours
   * For P2 (Major) incidents, response time 3 hour, restoration time 6 hours, and resolution time 24 hours
   * For P3 (Non Service Impacting) incidents, restoration time 24 hours, and resolution time 5 calendar days
2. **Documentation**

The documentation shall include the following items:

* High level design solution description covering the implementation and the upgrade procedure
* Data sheets, technical specifications and manuals.
* Roadmap for both Hardware and Software
* List of all the features and licenses supported by the hardware and highlighting which are included in the offer

1. **References**

* Bidder should mention references for his deployment of such an upgrade solution in a mobile operator environment. Minimum 3 references.
* Details of the reference need to be provided: Operator, Country, type of upgrades.
* Gold partner with certified employees having CCIE Service Provider and CCIE Routing & Switching