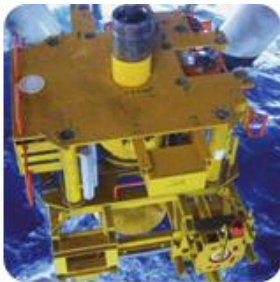


Network Managed Services

Request for Proposal



RFP Details in Brief

RFP Date	
Brief description of the RFP	
Address for communication	
Contact details	
Last date of submission of any queries	
Last date of submission of RFP	

Contents

PART 1: OVERVIEW AND GENERAL INFORMATION4

 ABOUT BH 4

 PROPOSAL PURPOSE 4

PART 2: REQUIREMENTS GUIDELINES5

 NETWORK OPERATIONS CENTER (NOC) 5

Network Infrastructure and Security devices.....5

Manufacturing and Engineering Connectivity Systems5

SD-WAN Services.....5

 NETWORK TOOLS MANAGEMENT 7

 SUPPORT MODALITY 7

CONTINUOUS IMPROVEMENT.....10

PART 3: SERVICE QUANTITY AND LEVELS11

 SERVICE QUANTITY 11

Quantity Types 11

Reactive Incident Ticket Volumes..... 11

Request Ticket Volumes 12

Change Volumes 12

 SERVICE LEVELS 13

Incidents..... 13

Root Cause Analyses (RCA) 13

Escalation Process..... 13

PART 4: RFP RESPONSE14

 EVALUATION CRITERIA 14

 RESPONSE GUIDELINES 14

RFP SCHEDULE15

PENALTIES 16

APPENDIX A: SUMMARY OF LIST OF DEVICES16

APPENDIX B: PRICING SUMMARY16

Acronyms

BH	Baker Hughes
LNG	Liquefied natural gas
DT	Digital Technology
RFP	Request for Proposal
NOC	Network Operations Center
RCA	Root Cause Analyses
3PR	3 rd Party Connectivity
VPN	Virtual Private Network
OT	Operational Technology
FCS	Field Connectivity Services
QOS	Quality of service
CMDB	Configuration Management database
SOW	Statement of work
CAB	Change Advisory Board
CLI	Command-line interface
MI	Major Incident
L1	Level 1 Help Desk (SOLV)
L2	Level 2 Support (Provider NOC/SOC)
L3	Level 3 Support (BH SMEs)
SOLV	BH Help Desk

Part 1: Overview and General Information

About BH

BH is a world leader in advanced technology equipment and services for all segments of the oil and gas industry, from drilling and production, LNG, pipelines, and storage to industrial power generation, refining and petrochemicals. BH also provides pipeline integrity solutions, including inspection and data management, and designs and manufactures wireline and drilling measurement solutions for the oilfield services segment. BH operates in more than 120 countries with 65,000 employees.

Proposal Purpose

The BH Digital Technology organization is looking to consolidate device and maintenance management for its 13000+ infrastructure devices at Baker Hughes (BH) organizations. L1 Services will follow the SOLV process and all ticketing which happens through BH ticketing system. This RFP is for a new L2, and L3 service that incorporates improved tool management and reporting functions, a metric incident, change and problem management while also incorporating document management and automation. **The RFP should be structured for later years cost out through automation & optimization of existing services, so both parties take advantage of process & automation investments.**

Note: The requirements listed below in this RFP are not limited to and should follow and comply with the entire ITIL process and guidelines for Incident, Problem, change management etc.

Part 2: Requirements Guidelines

Network Operations Center (NOC)

This Section includes Scope and activities related to:

- Network Infrastructure, and security devices*
- Manufacturing and Engineering Connectivity Systems*
- SD-WAN Services*
- Enterprise Vulnerability Management*
- NSO (Network Security Operations) * [Separate costing]
- WAF Operations management [Separate costing] ^
- DevOps Automation and Operations for Multi-cloud support^

(* - per device costing expected, for more details refer Appendix B)

(^ - Fixed monthly fees expected)

Network Infrastructure and Security devices

- All, but not limited to: LAN, WLAN, WAN, WAN Transport (Circuits), Load Balancing, Firewalls, IDS/IPS
- Network discovery and assessments
- External DNS management and troubleshooting
- 3rd Party (3PR) and VPN Technology support
- Manufacturing connectivity and Engineering support
- Data Center and Multi-Cloud (AWS, Azure, OCI, etc.) Network Infrastructure Support
- Support Projects that Require Operational Assistance
- Support FCS (Field Connectivity Services) circuits (transport)
- Optimization and quality of service (QOS)/traffic prioritization reporting
- Performance reporting and improvement recommendations

Manufacturing and Engineering Connectivity Systems

- All connectivity systems related to MFG and Engineering
- Assist the OT and Security BH teams in day-to-day management of MFG / Engineering Connectivity Systems

SD-WAN Services

Baker Hughes requires the partner to manage and support VMware SDWAN VeloCloud environment. The devices will be sourced, owned, and licensed by Baker Hughes and will require the partner to provide:

- Incident management (Level 1-3 support) including up/down monitoring, capacity planning, license management, life-cycle management, pro-active alerting on issues etc.
- Senior technical resources to partner with BH Network Architecture team on delivering VeloCloud Standards/Design & Roadmap aligning to industry best practice recommendations.
- Software/firmware management.

In support of this requirement please provide additional information covering:

- Current capabilities on SD-WAN management services being delivered to global enterprise customers.
- Partner status with VMware **specifically for VeloCloud SD-WAN product**
- Escalation matrix (Internal & with VMware)
- Details of VeloCloud Gateway nodes available for use
- Current Client base size of SD-WAN (VeloCloud & non-VeloCloud including devices under management)
- Details of processes/best practices for Monitoring of Velocloud CPE 24x7 / Performance reporting / Active Alerts
- Software/firmware upgrades and updates procedure / best practices
- Engineering support / Bulk changes (e.g., Profiles / Business Policies) / Scripting & Automation ability
- New Site Turnup / Activation Process (Lead time / Coverage worldwide to activate based on local time zone)
- Specific details of how SLAs & Time to restore (TTR) metrics will be met given gaps in VMware's global hardware support coverage.

- Hardware sizing best practices
- Details of certifications and accreditations for VMWare SD-WAN
- Experience of integrating SD-WAN & SASE platforms

WAF Operations management (24by7)

L1 and L2 Support for WAF operations with the below tasks

- Provide operational support for onboarding new sites to CWAF.
- Provide WAF support for troubleshooting connectivity issues or application errors.
- Implement / update configurations on WAF based on recommendations provided by CSRC Infra security team.
- Engage Imperva/Akamai security engineers to get support on incident triage, health review and tuning of policies for critical WAF alerts / zero-day attacks.
- Co-ordinate with application owners to review site configurations and decommission inactive sites from WAF.
- Monitor and review bandwidth consumption reports from Imperva to identify overages.

Enterprise Vulnerability Management (8by7)

End to End vulnerability management of all the network devices within Baker Hughes environment. Manage and mitigate the identified vulnerabilities on network devices.

- Own the vulnerabilities.
- Manage/Mitigate/track/triage the vulnerabilities

DevOps Automation and Operations for Multi-cloud support

DevOps Automation and operational support for Multi-cloud environments

- Network Infrastructure Automation & Feature enhancements, DevOps operational sprint tasks delivery using CICD pipeline.
- Cloud Network Troubleshooting and Incident Response.
- Security and Compliance which includes but not limited to Security Vulnerability remediation, firewall Policy Management & cost optimization.

Dedicated team operating for BKR Cloud networking services:

- 1 x Delivery Lead who will be responsible for end-to-end project executions (offshore India based).
- 3 x Cloud Engineers will be responsible for assigned tasks and on-call support (1 onsite US-based and 2 offshore India-based).
- 16 x 5 including support for on-call during non-support hours.

NSO (Network Security Operations)

- Firewall and Security systems monitoring, config review and management.
- Monthly firewall configuration review, baseline config templating, rule management and clean-up as per security requirements.
- Own the firewall request process which includes but is not limited to Firewall requirement identification, triaging and owner identification, coordination with relevant teams, config creation, and deployment for on-prem as well as cloud.
- Addition/deletion/management of firewall configuration as per requirement e.g. creation/deletion of new VPN tunnels, integration with new networks etc.

Network Tools Management

This section includes Scope and activities related to:

- Support tools relevant to appliances and network domain
- Dashboard development and management
- Enable and implement automation proposals based on operational requirements.
- Standardization and bulk configuration
- Execution of the defined operational and network security standards and auditing with monitoring Tools
- Enhancement of tools for automation of bulk change & bulk validation

Support activities relevant to network domain tools

- Full operational support of BH Network Tools
- Collaboration with BH for any tools road mapping, gap analysis and development
- Tools Event Management and Development
- Operational Support of all tools functions
- Automation / Integration between tool systems
- Upgrading, replacing, and maintaining the tools
- IPAM MACD, reporting and automation

Commitment to Automation & Process Enhancements. Pass-on benefits of automation and process enhancements to the customer:

- Share the Automation commitment in next 1/2/3 years
- Estimated reduction in efforts/resources because of automation in next 1/2/3 years
- Committed cost benefits (in percentage) as part of automation with timelines

Dashboard creation and management

- Create reports and dashboards for tool health, usage, and opportunities.
- Create reports and dashboards for capacity management.
- Create reports and dashboards for lifecycle management.
- Create reports and dashboards for change management.
- Create reports and dashboards to support problem management.
- Enterprise dashboard maintenance, updates, and upgrades

Automation proposal and implementation

- Describe current capabilities of automation solutions for common network tasks, advanced diagnostics, alert handlers and ticketing, Tools and/or reporting.
- Assist other teams to automate what they do.

Bulk configuration

- Assist in large scale changes, modifications and/or updates to systems.
- Monthly Report of tools gaps and propose solution.

Audits & CMDB Data Integrity with Monitoring Tools

- Monthly check for device inventory accuracy; Actuals vs. CMDB data
- Monthly close discrepancies and gaps identified.
- Monthly generate enterprise audit reports for BH management
- An annual audit of the Network device inventory to ensure completeness, accuracy, and appropriateness.

Support Modality

Incident, Service Request, Change and Problem management.

Knowledge Management
Reporting
Ops Projects
Non-ticketed activities
Support Coverage

Incident And Service Request Management activities

- Monitoring, triaging, and resolution of all network alarms, event/alert logs
- Triage, investigate, troubleshoot, and drive resolution for all incidents assigned to NOC queue.
- Support other teams in resolution of Major/Critical Incidents not owned by the NOC as applicable.
- Implement requests assigned to the BH ticketing queue.
- Monitor NOC queue in BH ticketing tool to keep track of open Requests/Incidents
- Update Requests/Incidents in BH ticketing tool as per defined SLAs.
- Resolve 3rd Party connectivity and Firewall rule change Incidents and Requests
- Implementing new and changed site-to-site VPN and client connections.
- Appliance administration and break fix support.
- Support for remote access requests and Incidents for VPN software, etc.
- Coordination with other BH groups in support of the scope above
- Coordination with any required 3rd party as it related to the scope above.
- Periodic status check and reporting to BH DT Managers including BH Security
- Stakeholder updates on NOC performance and metrics

Change Management activities.

- Management of all Service Catalog Requests
- Follow BH Change Management Processes
- Change preparation including impact assessment and readiness assessments.
- Communication and communication planning with the users and other BH support groups
- Change scripting and peer review.
- CAB representation and request approvals
- Follow release and deployment schedule agreed with BH.
- Manage all firmware, OS, and software versioning, patching and upgrades.
- Performing network changes to support, Voice and/or Tools functionality
- Execution of preapproved and CAB approved changes, including but not least, firewall rule changes via BH change management tools and direct CLI or other approved tools, as required.
- Update and modification of Masterdata as required by any/all changes.
- Manage hardware and equipment disposition, removal, and reconciliation.
- Network infrastructure, Voice, tools, security and other network appliance software upgrade activities, patching, signatures updates and operating system maintenance, in coordination with BH Security
- RCA for every failed change including recommendations and plan for improvements.
- SOP's, playbooks, documented test plan for every change
- Test the change in Lab/UAT networks

Problem Management activities

- Follow all BH Problem Management Processes
- Focus on permanent solution for workarounds.
- Proactive Problem Identification and incident avoidance
- Problem Diagnosis, Resolution and Evaluation
- Problem and Error Control
- Major Problem Review
- Problem Management Reporting
- Root Cause Analysis with corrective and preventive measures of all problem activities with the intention of problem elimination

Configuration Management activities

- Hardening of the network devices as per BH standards.
- Configuration backup and recovery of the network devices
- Maintain Network Production Device config standardization and templatization
- Partner in maturing standards, bringing industry best practice.

Knowledge Management

- Create and update knowledge documents, diagrams, and FAQs
- Create and update of Network diagrams and related documentation
- Building a known error catalogue from RCAs, proactive ticketing & vendor advisories
- Build tutorials for tools and dashboards.
- Keep a central repository for team collaboration.
- Knowledge transfer to any/all required support teams and customer liaisons.

Reporting

- Daily Shift Handover Reports
- Weekly Summary of P0/P1s/Critical P2s, RCAs and solutions for workarounds
- Monthly reports for:
 - Incident response times, MTTR, SLA metrics, incident statistics and trend analysis
 - Request response times, MTTR, SLA metrics, incident statistics and trend analysis
 - Change success/failure, SLA metrics and other statistics.
 - Capacity management (Circuit utilization, licenses, etc.)
 - Number of Problems and solutions found/incidents reduced.

Projects Requiring Operational Support

- Plan, communicate, implement, and test scheduled maintenance.
- Plan, communicate and test failover testing.
- Assist the BH teams in standardization programs.
- Implement bulk configuration and operating system changes.
- Assist in device lifecycle and obsolescence management.
- Deploy new network management tools.

Non-ticketed activities

- Support BH users on issues related to the above scope.
- Support BH of business events with Hypercare model
- Support and lead on conference bridge during P0/P1, Major Incident and RCA
- Perform incident, request, change management audit from process standpoint and share report with BH stakeholders.
- Perform Ticket Trending, identify repetitive incidents, capture significant alerts in tools and share RCA for them.
- Perform RCAs for high severity incidents (P0/P1) as part of Problem Management activities.
- Coordination for inputting all the variables required in the BH tools for changes.
- Create and follow TAC cases raised with Cisco and/or any other vendor.
- Support for modification and adaptation of hardware, software, and configuration standards to adapt to business changes.
- Manage any / all BH accounts required to support the above scope.
- Interact with vendors on Hardware replacement/bug fixes, patches, upgrades, and other critical L3 Support Activities.
- Own and Manage Transition to Operations Process
- Provide support as requested by the core infrastructure product (IE: Citrix, High Performance Computing) teams.
- Analysis and coordination with BH Cyber Security for threats and breaches
- Capacity Planning with recommendations provided monthly to BH.

- Work with BH teams to develop and implement appropriate Service Level Metrics
- Work with BH teams to improve service delivery.
- Align with BH process and share best industry practices with BH to improve process as applicable.
- Termination Assistance

Support Coverage

- 24x7x365 L2 and L3 support for all related issues to the above scope.
- On-demand coverage as agreed by all parties
- All NOC Personnel will have access to all support queues. These Queues will be monitored 24x7x365.
- Dedicated support line for BH NOC which includes regional support numbers.

Continuous Improvement

This section includes the requirements related to the continuous improvement plan.

The continuous improvement plan should include the following:

- Weekly Operations Review
 - Review and discuss all major incidents, problems, and trends.
- Monthly SLA Review
 - Review all contractual SLAs, breaches, financial restitution, and corrective measures.
 - Presentation of voice of customer feedback via Baker Hughes CSAT data
- Quarterly Stewardship Review
 - Review this “Network Managed Services” contract and adjust, where needed, to maintain operational efficiency, adapt to the changing enterprise environment and changing business goals.
 - This would include, but not be limited to, contract addendums, change orders, pricing adjustments, SLA modifications and/or complete restructuring of the contract.
- Yearly Enterprise Strategy and Roadmap
 - Review of the BH Strategy and Roadmap of the business and make any course corrections based on future projections.

Part 3: Service Quantity and Levels

Service Quantity

Quantity Types

BH Sites	525
BH Devices	13000~

Type	Quantities
Routers	300~
Circuits	800~
WLAN Access Points	5900~
WLAN Controllers	200~
Switches	5600~
Firewalls	225~
Velo Devices	560~
Load Balancers	20~

The above figures share light to the number of devices at a given point in time and does not state the exact number of devices that will be required to support. These are only for guidance purposes.

The number of devices committed may be different than the numbers showcased above.

Reactive Incident Ticket Volumes

Month	SD-WAN Incidents	Network Incidents	Security Incidents	Tools Incidents	Wireless Incidents	Circuit Incidents
Month 1	37	371	27	5	20	26
Month 2	19	328	17	5	16	17
Month 3	27	428	15	3	19	15
Month 4	31	334	9	5	10	13
Month 5	13	330	10	8	10	13
Month 6	14	218	9	4	5	12

The above tables share light to the number of incidents tickets opened not the number of incidents worked. These are only for guidance purposes.

Request Ticket Volumes

Month	SD-WAN	Network Requests	Tools Requests	Wireless Requests	Service Catalogue (Firewall, VPN etc.)
Month 1	25	133	46	15	78
Month 2	11	135	78	12	52
Month 3	19	142	72	5	74
Month 4	16	140	72	1	75
Month 5	8	100	90	7	30
Month 6	3	109	94	21	45

The above tables share light to the number of requests tickets opened not the number of requests worked. These are only for guidance purposes.

Change Volumes

	Network Standard	Network Normal	Network Emergency
Month 1	25	85	1
Month 2	36	104	2
Month 3	40	148	0
Month 4	21	122	0
Month 5	39	77	0
Month 6	43	93	0

The above tables share light to the number of changes opened not the number of changes worked. Some have and will still be worked by the BH team. These are only for guidance purposes.

Service Levels

Incidents

Priority	SLA Response Time	SLA Resolution Time
P0	10 minutes (Time to join the bridge)	2 hours
P1	10 minutes (Time to join the bridge)	2 hours
P2	15 minutes (Time to initial response)	4 hours
P3	15 minutes (Time to initial response)	8 hours
P4	15 minutes (Time to initial response)	24 hours

* SLA performance will be reviewed every month based on the Continuous Improvement Process.

Requests–

Priority	SLA Response Time	SLA Implementation Time
P3	2 hours	8 hours
P4	2 hours	24 hours

Fireflow Request & SecConnect Requests are considered as P3 once the ticket reaches NOC Queue
External DNS Requests are considered as P4 once the ticket reaches NOC Queue

Root Cause Analyses (RCA)

Priority	Required	Detail
P0	Yes	Full Detailed Report
P1	Yes	Full Detailed Report
P2	Yes	Summary report
P3	No	None
P4	No	None
Problem tickets	Yes	Root Cause Report
Performance Issues	Yes	Root Cause Report
RCA Request	Yes	Full Detailed Report

Escalation Process

- Submit an escalation process for SLA breaches and undesirable service levels.
- Submit an escalation process for Major Incidents (P0/P1)
- When SLAs are not being met on a consistent basis both parties will discuss resource replacement or how it is being delivered

Part 4: RFP Response

Evaluation Criteria

Proposals submitted will be evaluated on the following criteria:

- Provide documentation that demonstrates your ability to implement an ITIL environment for Incident, Change and Problem Management
- Provide documentation that demonstrates your ability to focus on tool management and ability to automate.
- Proposal of tools required to successfully deliver the service level required by this RFP.
- Proposal for Transition Period and Transition Plan
- Provide documentation that demonstrates your ability as a leader in Continuous Improvement Processes
- Proposal of SLA structure including penalties/bonus, improvement plans and continuous improvement.
- Provide resources with required technical skill sets to fully manage the service according to the defined SLAs.
- Provide shift structure to support 24x7 operations model, including NOC (Primary/Secondary) location, resource type (Physical/Virtual) & skill level per shift.
- Provide list of existing SOP's and information about existing knowledgebase (Managed NOC related lessons learned, playbooks, test plans etc.)
- Prepared to challenge BH stakeholders to validate business requirements and provide the optimal solution.
- Provide documentation that demonstrates your ability to work independently across functions and work with all levels of users and management.
- Provide documentation that demonstrates your breadth of IT experience and business acumen.
- Document your ability to provide multi-language support (IE: English, Spanish, Italian, Portuguese, Russian, etc.)
- Provide documentation of prior Oil and Gas experience performing the in-scope work; an environment similar to BH
- Provide a clear and cost effective commercial proposal based on the mentioned requirements

BH HAS THE RIGHT TO SELECT A DIFFERENT SERVICE PROVIDER FOR ANY SEGMENT IF THE CRITERIA IS NOT MET FOR ALL REQUIREMENTS

Response Guidelines

Your proposal should be submitted according to the following format:

Company Overview

- In relation to this RFP, a brief and concise overview of the service provider capabilities and expertise
- Historic turnover rates

Proposal Overview

- A brief and concise overview of the service provider's proposal in response to this RFP.

Proposal Detail

- Detailed response to this RFP as outlined above.
- Recommended Tools required and tool deployment plan.
- Recommended staffing levels to meet scope of work and Service Level requirements.
- Proposed Team Structure and plan to expand if required.
- Proposed workflow, communications plan, and method by which work is identified for the service team.
- Assumptions taken and assumptions required for scope changes during the life of the agreement.
- Proposed network interconnect between provider and BH.

Proposal Scaling

- The proposal must allow the ability to scale up or down.
- The proposal segments are:
 1. Network Operations Center (NOC)
 2. Tools Management

3. Continuous Improvement
4. SLAs and Penalties

Reviews

- The proposal must follow the continuous improvement process schedule defined above.
- The service provider is expected to fully manage the schedule for these reviews.

Price

- Fixed Bid for the entire RFP with a breakdown of cost per segment
- Pricing should be highly industry competitive.
- Proposed fees at risk of not attaining the specified SLAs – a minimum of 20% is expected.
- Pricing should be based on per device cost per month when applicable.

Added benefits.

- Provide detail of what the service provider can offer as an added value to the proposal
- An example of added benefits is L4 support in cases where SLA has been breached.

Service Add-ons

- The service provider is encouraged to propose service add-ons.
- Any add-on must have a separate Price Bid from the Proposal Bid
- Any add-on must have a separate Timeline and Transition Period from the Proposal Bid

Exclusions

- Provide detail of any exclusions to assumptions in the Scope of Work
- Provide detail of any noted exclusions to the Scope of Work, to which the service provider has chosen to bid

Service Provider responses to BH CTQs & Evaluation Criteria

- Specifically outline service provider ability to meet BH and evaluation criteria as outlined in section 8.4

Appendix

- Include all verbiage, boilerplate, and other extraneous material in an appendix at the end of the response to this RFP.

RFP Schedule

	Tasks	Dates
1	BH releases the RFP	18 th Sept
2	Vendor internal review	18 th to 22 nd Sept
3	Meetings and Q & A from Participating Vendors	20 th to 29 th Sept
4	Submit responses to BH	6 th Oct
5	BH Internal Review and Q&A if needed	9 th till 23 rd Oct
6	Shortlist and 2 nd round	23 rd till 3 rd Nov
7	SOW completion & award	6 th till 10 th Nov

- Vendor Q&A Session: 9/20/23, 8:30 AM CDT till 11:00 AM CDT (meeting information is below). Due to personnel schedules, emailed questions before the call cannot be addressed.

*ALL DATES SUBJECT TO CHANGE VIA FORMAL NOTIFICATION

APPENDIX A: SUMMARY OF LIST OF DEVICES



Summary of list of
devices.xlsx

APPENDIX B: PRICING SUMMARY



Pricing Summary.xlsx