



# **NS2020: Management and Operations Systems Request for Information**

**RFI # QTA00NS15THI0001**

**Prepared by: Networks & Telecommunications SIG  
NS2020 Working Group GSA/Vender Operations Committee**

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This report provides recommendations to GSA and agency users to improve the operational communications between industry and the government under the planned Network Services 2020 (NS2020) portfolio. The report was prepared using industry and government observations and experiences from previous government-wide telecommunications acquisition contracts, such as FTS2000, FTS2001, and Networx, and provides recommendations to facilitate operational support systems under NS2020.

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- GSA/Vendor Operations
- Program Development
- Business Growth and Collaboration
- Technology and Innovation

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## Project Overview

This report was prepared by the ACT-IAC Networks & Telecommunications (N&T) Shared Interest Group (SIG) Network Services 2020 (NS2020) Working Group to assist the federal government, and in particular the General Services Administration (GSA), in planning for and executing the upcoming NS2020 contract. Participants in this effort represented a cross-section from industry and included representation from several federal agencies.

ACT-IAC was asked to identify GSA, agency/department, and vendor requirements for exchanging business information in the management, use, and provisioning of network services. The focus of this project was to analyze current data collection and management elements and methods, and then provide feedback and recommendations. The working group also looked at current operational processes and methodologies for a better understanding of these processes and how they might also be improved upon.

The objective of the NS2020 Working Group is to have industry and government work together to achieve an efficient and cost effective NS2020 operational platform that meets the government's requirements for service ordering, inventory collection, billing validation, and SLA management.

This report is not intended to be a comprehensive guide on how to build and/or operate operational support systems (OSS). Instead, recommendations will be provided on how to better communicate and exchange operational data back-and-forth between industry and government. This effort is specific to making better use of existing systems on either side of the interface and could also assist in the development of new applications as needed to prepare/receive orders, transmit acknowledgements, build and maintain inventories, or to provide for other operational support requirements.

Some of the recommendations provided apply to GSA as the contract holder and other recommendations may apply equally to both industry and government.

This report is not intended to address the actual procurement activities – development of statements of work, management of the proposal process, evaluation, and award – but each of these precedent activities has a tremendous bearing on the time required to effect a contract-level acquisition.

Comments and questions may be directed to NS2020 Working Group GSA/Vendor Operations Committee Government Co-chair Carl Tucker at [Carl.Tucker@ao.uscourts.gov](mailto:Carl.Tucker@ao.uscourts.gov).

## Executive Summary

On October 31, 2014, GSA issued an RFI on their NS2020: Management and Operations Systems (MOPS) plan. The RFI included information specific to operations and systems, we would also like to provide comments on the impact of these systems to service transition between contracts. These items are intertwined and heavily interdependent – systems, products, geographic coverage, and other aspects of the NS2020 contracts impact each other in sometimes subtle ways. For example:

- Systems changes contemplated in the RFI will have an adverse impact on the start of the transition. Major stakeholder groups including agencies, GSA, and industry would be required to change existing systems and/or develop new ones. Transition should not

begin without a sound underpinning of operational processes and systems; a major impact could be that the transition cannot commence until each stakeholder group has designed, developed, tested, and implemented these proposed new systems.

- The assertion in the RFI that CLINs cannot necessarily be mapped from one contract to another could prevent automated systems to create new orders from existing inventory. The CLIN structure should be developed to include a rules-based mapping between contracts. Otherwise, manual intervention will be required.
- A redesigned agency hierarchy code (AHC) structure will force agencies to either validate their existing schemes or create completely new ones, which could introduce significant delays in the ability of an agency to place an order.

In the following, the working group has provided individual responses to each of the 43 questions found in the RFI.

## **Comments to Specific MOPS RFI Questions**

### **RFI Section 2.1 Web Interface (page 3)**

**Question 1.** *What, if any, is the minimum set of web interface requirements needed to comply with the requirements for ordering, billing, and inventory management along with the cybersecurity and accessibility compliance?*

The working group is pleased that GSA's proposed ordering process includes the six steps of the standard data inter-exchange (SDIE) approach. We recommend continued collaboration between GSA and the vendor community towards further development of the SDIE, in particular, the identification of data elements to be associated with each of the steps in a standard format that allows machine-to-machine transmission of the data elements identified with each contracted service.

At this time, vendors should not be required to provide a single integrated portal for all NS2020 services. It is current standard practice for commercial customers to keep wireless and wireline activity separated on all levels from ordering to billing in order to maintain a shorter interval for wireless services. Merging both wireline and wireless into a single web interface adds complexity to wireless service and slows down the implementation cycle, creating a significant burden on vendors. GSA and the vendors should develop portals that best meet their needs.

Regarding cybersecurity and accessibility compliance, the basic system requirements supporting most services should not be required to exceed Low Impact systems requirements and Section 508 compliance is acceptable. Systems supporting services classified as FIPS 199 Moderate or High Impact will implement the additional security controls required prior to the time they are available for service to the government.

**Question 2.** *Would it impose an unreasonable burden to include SLA management as part of the web interface requirements?*

Yes, this is an unreasonable requirement for the government to define exactly how the vendors are required to provide SLA management on the web interface beyond "a Networx SLA report." Most vendors do not offer a web-based SLA management tool customized at the contract level

commercially. There are network performance reporting tools for commercial customers with vendor-provided MNS and standard monthly SLA statistics available to all commercial customers. Custom SLAs and SLA reports increase the level of effort, system costs, manual intervention, and ultimately the final cost to the customer. Consequently, a task order may be the best way for an agency to obtain SLA reporting via a custom interface. Vendors may or may not elect to add cost for the provision of SLA reporting via a web interface.

**Question 3.** *Would it impose an unreasonable burden to include capabilities for trouble-ticket initiation and trouble status tracking/resolution as part of the web interface requirements?*

It would not impose an unreasonable burden to include capabilities for trouble ticket initiation tracking and trouble resolution status as part of the web interface requirements when utilizing the commercially offered web interface to do so. However, some requirements could make the use of commercial system ticket integration problematic. For example, most commercial systems are not designed to meet FISMA “moderate” or “high” risk systems requirements. Also, a commercial interface would not include government specific information such as the AHC.

Using a commercially offered web interface alleviates costs to both the vendors and the government.

**Question 4.** *What applicable web interface functionality is provided to commercial enterprise customers?*

The working group has no comment on this question.

**Question 5.** *How do your commercial customers view inventory?*

The working group has no comment on this question.

## **RFI Section 2.2 System-to-System Data Exchange (page 4)**

**Question 6.** *What structure/interface standards do you recommend for the various XML schemas relating to ordering, billing, inventory, and SLA performance data? Can industry standards be leveraged to meet the government's needs?*

The working group recommends reviewing the vendors’ responses to the data dictionary requirements for insight into the data structures proposed. The NS2020 EIS data dictionary table field requirements that support ordering, billing, inventory, and SLA performance data require substantially more fields than Networx. The cost of accommodating all of the NS2020 EIS data would be passed through by the vendors to the agencies. Note that it would be impractical and costly to support e-bonding on every function (e.g., order status).

The working group recommends an industry-government partnership be formed to identify the minimum data set to be associated with each function in a standard format.

The working group recommends using web services standards widely adopted by the industry, such as Web Services Description Language (WSDL) and Simple Object Access protocol (SOAP).

**Question 7.** *Do you prefer a single data exchange file (XML schema) for the various BSS functions such as ordering, billing, and inventory management, or separate XML schemas for each function?*

Separate schemas should be established for each of the different services and business functions. Separate schemas would be easier to manage than a single schema. Please see the working group's previous recommendations on XML.

**Question 8.** *What other electronic data exchange file format(s) do you recommend for order status, service performance compliance, and billing reporting and delivery?*

The working group recommends file formats that are delimited. PDFs should not be used.

### **RFI Section 2.3 NSFS Data Dictionary (page 5)**

**Question 9.** *The government seeks input into the data elements needed to comply with the government requirement to track CDRL items, ordering and billing files, as well as vendor-provided data in a consistent, pre-determined file structure and format.*

We recommend limiting the data elements requested for the management of NS2020 program contracts. Vendors can meet all of the functional requirements for the government's ordering, notices, billing, inventory, and CDRL requirements using existing commercial tools. Overall, the proposed data dictionary included with the RFI is quite elaborate, with complex data relationships and variability by service. There are many more NS2020 MOPS data elements compared to Networx.

As offered in the response to question 6, the working group recommends that an industry-government partnership be formed to identify the necessary data elements to be associated with each process in a standard format. This includes assisting with the development of a new NSFS data dictionary that complements the processes identified (ordering, notices, billing, inventory, CDRL, etc.) rather than the complex relationships and variabilities in the data elements demonstrated in GSA's proposed document.

**Question 9a.** *Can the respondents provide all the data elements defined in the master data dictionary and marked as required?*

Vendors cannot provide all of the NS2020 MOPS data elements defined in the master data dictionary using their existing commercial systems. Even if a dedicated government front-end were developed, it would be difficult for vendors to provide all of the data elements outlined in the master data dictionary. We recommend significantly reducing the number of required and optional fields defined by GSA in the generic section of the data dictionary, and requiring only a minimum set of fields on the service-specific sections of the data dictionary. All other fields should be vendor-customizable. We recommend:

- The AHC should not be defined at the CLIN level; instead, it is recommended that it be defined at the order level.
- CLLI isn't necessary; use the NSC.
- The following CDRLs would require substantial development:

- List of materials request, acknowledgement, or response,
- Permissions reference tables (all eight tables),
- PIC reference table,
- Point-of-contacts reference table, and
- Vendor point-of-contacts reference table.

**Question 9b.** *If not, what are the data elements the respondents recommend and can provide relating to the ordering, billing, inventory and SLA management?*

Vendors would incur substantial development cost if they have to provide all of the data elements defined in the master data dictionary. Consequently, GSA and industry should work together to identify the minimum number of data elements necessary to perform their operational duties. The majority of the required data elements should be commercially available.

The working group suggests adding a few key elements to maintain the traditional structure of a service order. The dictionary should include vendor service order number(s), service type and AHC (at a minimum) at a vendor's service order level.

Vendors will require more time and effort to reconfigure their BSS to include GSA's new ordering, billing, inventory and SLA management data elements as defined in the vendor data interaction plan. GSA should describe how billing for task orders meets standard accounting requirements. The working group recommends managing the data dictionary in a similar way as Networx, where the list of needed fields is defined and is a smaller set.

**Question 10.** *The government's goal is to collect ordering information at a granular level to verify/validate billing information and also to address security control requirements, etc. Please provide recommendations on the most effective approach to achieving this goal.*

Collecting ordering information at a granular level is appropriate when identifying individual components of an order and, as applicable, the individual pricing of those components. This helps to verify the total cost of the order being placed. This "granular level" should be comprised of a minimum set of data elements identified by the government as being necessary for operational use by the majority, consistent with regulatory requirements.

It is also useful to collect granular data for inventory purposes, provided the information is necessary for trouble reports, is billable, and/or is necessary for configuration purposes. Additional granular data is not necessary.

Once an inventory record has been fully implemented, granular detail is no longer necessary for billing purposes; i.e., invoices should not include excessive and unnecessary data. Every detail (granular data) in an inventory record does not need to be put into an invoice and checked and re-checked each and every month for certification purposes.

**Question 11.** *What level of inventory data detail can vendors provide for services that are offered "as a service" or as part of a fully-managed services model?*

The working group has no comments on this question.

## **2.4 Management & Operations Procedures/Processes (page 6)**

**Question 12.** *How will the vendor capture and provide the task order information as a system-to-system data exchange requirement for GSA's NSFS?*

The proper combination of data elements should be defined by contract for each service provided under that contract. These data elements, and their location within the SDIE 6-step (GSA MOPS RFI 9-step CDRL) framework, should be set as a standard for all vendors and agencies to use either within their existing commercial/government applications, or incorporated into new applications as those are developed.

**Question 13.** *How will the vendor capture and provide the service order information as a system-to-system data exchange requirement for GSA's NSFS?*

Exchanges should conform to a SDIE. The vendor's list of materials (LOM) should include sufficient information for placing an order with the vendor. If necessary, the vendor -- with Agency authorized signature approval -- will complete the order for the agency so that a service order confirmation (SOC; step #5 on Table 8 of RFI Appendix A.1 CDRL) can be issued and implementation begun. Therefore, the SOC then shows a complete LOM of everything that was approved and ordered by the agency, as required by law.

**Question 14.** *What Service Group Codes, as described in the Data Dictionary, do you recommend and which data elements support the Service Group Codes?*

The working group has no comment on this topic.

**Question 15.** *What level of detail do you recommend for Service Group Codes?*

The working group has no comment on this topic, as each vendor will have their own specific preferences.

### **RFI Section 2.4.1 Ordering Procedures (page 7)**

**Question 16.** *Please provide comments/recommendations on the ordering process flow.*

The working group has no comments on this topic, as each vendor will have their own specific preferences.

**Question 17.** *Proposed notification requirements relating to ordering for different services such as cloud, managed network services, VoIP etc., including on-demand self-provisioning, etc.*

The methods and procedures for ordering, provisioning, billing, and managing inventory for these services are evolving as are the services. Therefore, the working group recommends GSA utilize vendor commercial processes as much as possible. It is too early in the evolution of these services to apply a single MOPS approach. As offered in the response to question 6 above, industry and government should work together to identify SDIE standards for new processes as they are needed.

### **RFI Section 2.4.2 Billing Procedures (page 8)**

**Question 18.** *Based on the above information relating to billing please provide comments and suggestions on the following:*

- *Billing process flow*
- *Business rules for the billing process*
- *CDRL requirements for billing*
- *Notification requirements for billing*
- *Billing detail proposed in the data dictionary*
- *Billing verification/validation and dispute resolution*

GSA should use industry standard notations for describing a business process and rules.

### **RFI Section 2.4.3 Payment Process (page 9)**

**Question 19.** *What are some of the commercially acceptable business rules associated with implementation of partial payments?*

Partial payments are not an accepted commercial practice. Accepting partial payments would place an additional financial and resource burden on the vendors. Agencies and GSA should submit a dispute if they believe an invoice includes an error.

**Question 20.** *How do you suggest mitigating inaccuracies in the billing verification/validation process?*

Inaccuracies in an invoice should be resolved by GSA or an agency by submitting a dispute, as is done today. GSA should limit the number of fields that can be disputed to only those that impact rates. The working group recommends that a new category be created for changes which would be a records-only change. For example, moving accounts to different AHCs. In this manner the true number of billing disputes can be captured.

### **RFI Section 2.4.4 Taxes, Fees and Surcharges (page 10)**

**Question 21.** *Please provide comments on the above requirement including recommendation for when the above information should be provided (i.e., along with invoice etc.) and the tax billing detail described in the data dictionary.*

The working group has no comments on this question.

### **RFI Section 2.4.5 SLA Management (page 10)**

**Question 22.** *What are the key issues and challenges for near-real time reporting on performance versus periodic performance reporting?*

Cost is the key issue. Near real-time reporting systems are available to commercial customers at no additional cost for specific services, specifically IP-based transport services. Standard near real-time reporting systems are offered through MNS for other transport services. Real-time reporting systems for non-transport services would require costly development.

The working group does not recommend automatic SLA credit calculations or payments. This process is not automatic for the vendors and must be manually calculated and validated for any customer requesting SLA credits each month.

**Question 23.** *Can near-real time performance reports/dashboards be provided to all contract services or only to specific types of services? If so, which contract services are more appropriate for near real-time and periodic reporting (daily, weekly, monthly, etc.)? Specify near real-time in your response.*

An agency should include its requirements for near-real time performance reports/dashboards on a task order. This should not be a general requirement.

**Question 24.** *Task order level SLA reporting.*

Agencies and GSA should recognize that SLA reporting beyond commercial practices would result in higher prices associated with the recovery of any development cost.

### **RFI Section 2.4.6 AGF Service Fee (page 11)**

**Question 25.** *Please provide comments and recommendations on the AGF service fee management approach described above.*

The working group recommends GSA retain a single flat rate across all products and services, for all agencies.

**Question 26.** *Based on the above approach please provide comments/recommendations for the following:*

- *Fee structure based on multiple and variable factors*
- *Pros and cons of excluding the AGF from the contract prices. What impact would it have on the contractors' quotation process and systems to include the correct AGF specific to each agency?*
- *Ability of contractors to administer a varying fee structure by A/B code. At what point in the fiscal year would the contractors need to know the new AGFs for the following fiscal year to have them implemented by October 1?*

The vendors recommend a flat and consistent AGF. However, if a variable AGF is a necessity, the working group recommends that GSA manage and administer it through the NSFS. This would reduce cost (vs. each vendor developing their own capabilities). GSA should administer the AGF so that it addresses any disputes arising from its use instead of the vendors.

**Question 27.** *Is there another approach that could achieve GSA's purposes without burdening the contractors, for example, retaining the single fee rate for all prices, all agencies and adding a discount CLIN for agencies GSA specifies?*

Same response as question 26.

## **RFI Section 2.6 BSS/OSS Systems Costs (page 13)**

**Question 28.** *The government seeks industry capital expenditure (CAPEX) cost estimates for the customization of BSS/OSS systems. These estimates should reflect the high-level requirements described in this RFI and should highlight any specific requirements that are significant cost drivers.*

Only the vendors can provide this information. The business case for the NSFS should include these inputs as well as those for risk.

## **RFI Section 2.7 Additional Management and Operations Questions (page 13)**

**Question 29.** *What specific technology trends in BSS/OSS systems are being adopted that could assist the government in management areas?*

Cloud, object and service orientation, model driven architecture (MDA), high level workflow languages, and self-serve business intelligence tools.

**Question 30.** *What specific issues should the government be aware of relating to your roadmap for BSS systems?*

The working group has no comments on this question.

**Question 31.** *How are you addressing trends such as dynamic provisioning in aligning ordering and billing processes and systems?*

The working group has no comments on this question.

**Question 32.** *What specific strategy is being developed to adopt the trend in the commercial space of managing customer experiences to the government sector? What impact does this have on your operations in terms of collecting the required data relating to customer experiences and sharing it as part of the SLA management process?*

Strategically, the continued evolution of user-friendly web-based interfaces allowing customers to have operational informational access – place orders, retrieve billing, place disputes, etc., is the key element to an exceptional customer experience. Each time customization beyond what is generally available to the commercial sector, cost is incurred to industry and those costs must be recouped through pricing for services. If the goal of the government sector is to obtain network-based or enabled services at the lowest cost, the agencies should utilize commercial services as they are. This is particularly true for emerging on-demand services where the best MOPS methods and procedures are evolving.

## **RFI Section 3.1 CLINs (page 14)**

**Question 33.** *With respect to the proposed 9-character CLIN in Table 1, what would be the implications to existing systems of requiring the CLIN to accommodate alphanumeric characters vs. restricting it to numeric digits?*

The new CLINs will add to the cost of NS2020 programs because of the need to reconfigure vendors' B/OSS.

**Question 34.** *The government seeks comments on these alternative approaches, including preference, impact to existing systems, and flexibility for accommodating changes and future pricing structures.*

The working group recommends retaining the vertical format for the CLINs. Utilizing a horizontal arrangement would require additional development.

### **RFI Section 3.6 Pricing Hub (page 17)**

**Question 35.** *The government is seeking comment on a scheme that provides flexibility for pricing that can be independent of the underlying infrastructure as engineered.*

The working group has no comments on this question.

### **RFI Section 3.7 Equipment (page 20)**

**Question 36.** *The government seeks comment on the concept to make substitution, introduction, price updates, and sun-setting of equipment possible in most instances without requiring a modification to the contract and without waiting for any specific period (i.e., dynamic changes).*

Vendors should be able to offer agencies commercial style discounts for equipment.

GSA should establish a process where a vendor could provide notice that equipment will be removed from its catalog in the next 12 months. The catalog process should:

- Allow prices for equipment already on the contract to increase and/or decrease based on changes the manufacturer makes to their official list price. A contract modification should not be required to change the price.
- As for sun-setting of equipment, allow vendors to remove any piece of gear from the catalog – for any purpose.
- Vendors should have the option of not offering a DMRC price for chosen services.

**Question 37.** *The government is seeking comments on alternative concepts for addressing the full equipment lifecycle.*

Allow agencies to either buy equipment up-front on an as-required basis, provide to the vendor as GFE, or obtain equipment as part of a vendor-provided managed service that is on contract.

If the recommendation above is not taken, the working group recommends eliminating the DMRC payment option for high-priced equipment or increasing the percentage that vendors can bill against the remaining unpaid DMRCs. This reduces vendor financial risk on more expensive types of equipment.

Managed services may be restricted to commonly used equipment due to the risk that the agency can terminate the service for convenience at any time. If agencies desire to obtain unique and customized equipment as part of a managed service, vendors need to be able to charge for the equipment if and when service is terminated early.

### **RFI Section 3.8 End-of-Life Service Pricing Concepts (page 20)**

**Question 38.** *We seek comments on the EOL concept overall, including the proposed 18-month EOL period, and the price increase framework. Also, we seek suggestions for other aspects of services that could be affected during EOL phase. These could include reduced support, SLAs, or other aspects of the service that would be reflective of an EOL service.*

The working group recommends a 12-month notice for EOL.

**Question 39.** *Ease of implementation under existing systems (please note that the TOs must be accommodated in some fashion given the FAR requirements for TO-based contracts).*

The working group has no comments on this question.

**Question 40.** *Alternative suggestions for pricing concepts that allow for wide flexibility.*

The working group has no comments on this question.

**Question 41.** *Overall concerns or perceived flaws in these concepts that may require refinement or an alternative approach.*

The working group has no comments on this question.

**Question 42.** *Recommendations on your commercial approach for identifying locations (other than street address, which will be required).*

While the working group still supports using the NSC code and its associated address as a standard, we recommend that GSA establish a contract to enable all contracted vendors to access the CLONES database to get an address in a standard format that both government and industry may use. This will enable more competition.

### **RFI Section A.2 Unique Identifier (page 28)**

**Question 43.** *Given the government's purposes and requirements for a unique sequence number, what is the best way to create and track/exchange this data element (i.e., what business rules does industry recommend for the unique sequence number concept)?*

GSA should assess the use of commercial ordering and billing elements to support its validation objectives. This would facilitate the ability for non-incumbent vendors to participate in the NS2020 program. If commercial fields cannot be used, the following is recommended as an alternative to the ULIN:

- 1) Use fields that are currently required for the Networx contract.
- 2) Use a combination of existing fields to derive a unique identifier for each billable element. The vendors recommend use of UBI and CLIN information that is provided on notifications and invoices. The UBI would be defined as a unique identifier which is never paired with the same CLIN multiple times, and the UBI could never be reused.
- 3) The incumbent vendors could change the methodology for assigning UBIs so that the combination of UBI and CLIN is always unique (such as adding a suffix for each new

location) but there would be additional cost for systems development. As an alternative, the working group proposes the UBI and CLIN combination but acknowledges this will not work for all services. The working group recommends continued discussions for the services that require additional information. For example, for services with origination and termination, or multi-point terminations, GSA can create a unique identifier for each end(s) by adding the originating and terminating Network Site code (NSC) to the non-repeatable UBI and CLIN.

- 4) GSA will also need to combine a vendor identifier to the solution to distinguish the UBI-CLIN (NSC) arrangement among the vendors.

This supports validation of SOCN to billing data. The working group agreed that multiple changes can happen to an order during the implementation process. The working group concluded:

- 1) Substantial development would be required for GSA to track all the changes throughout the order process.
- 2) The final SOCN should represent the culmination of any order related changes effecting price.

The working group does not recommend vendors provide the non-repeatable UBI prior to SOCN because:

- 1) Orders may undergo changes and supplements from SOC to SOCN. Adding the capability to track an order from SOC to SOCN with a new identifier arrangement would require costly development.
- 2) Some vendors encode the UBIs with circuit ID information which is available only at FOCN, i.e., before SOCN.

The vendors concluded the recommended approach meets the objective of the ULIN requirement while decreasing the cost and risk associated with the development of a new field.

## **Affiliated Organizations**

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