Network Application Performance Management (Network APM) +

1.   **GENERAL**

1.1   **Service Definition.** Network Application Performance Management + (Network APM) monitors the performance of Customer's application environment, from the physical servers and operating systems (either directly or virtually associated to server hardware) to the application processes residing on the host operating systems (subject to availability). Network APM is available at Customer Sites where third parties provide transport service(s), with Verizon's written approval.

1.2   **Standard Service Features.** Network APM 4 main feature options: Network APM–Server, Network APM–Application Monitoring, Network APM–End User Experience and Network APM-Business Process Application Monitoring. Customer can choose to implement any or all feature options, as well as various sub features within each main feature. Service Management Levels are also available with each feature option as described below. Customer will have a maximum of 10 user accounts and will ensure that all users understand and comply with Verizon's confidentiality requirements.

1.2.1   **Network APM – Server.** Verizon will monitor the Verizon-certified servers and/or operating systems on which Customer's applications reside. The server hardware and operating systems to be supported must be certified by Verizon.

1.2.2   **Network APM – Application Monitoring.** Verizon will monitor Customer's applications via application process/component run-time topology and process monitoring. Application topology maps the relationships of application components by process or function across a single host or multiple hosts. In addition, these components are monitored for availability and performance when applicable. A prerequisite for this feature option is Network APM – Server.

1.2.3   **Network APM – End User Experience.** This feature option uses end-to-end synthetic test agents to simulate user experience targeting specific applications. End-to-end agents also measure and report back with a perception score of application performance at particular locations so that Customer and Verizon can determine how the applications are performing for users at particular locations as well as what the likely causes are for any performance

degradations. In addition, NetFlow reporting provides visibility into the flow metrics of specific applications targeted for monitoring performance statistics on targeted network interface locations. The following 2 options are available under Network APM – End User Experience:

1.2.3.1 Network APM–End User Experience–IP Flow – This option monitors the Customer's net flow statistics.

1.2.3.2 Network APM–End User Experience–Synthetic – This option measures the digital end user experience through simulated transactions.

1.2.4 **Network APM – Business Process Application Monitoring.** Business Process Application Monitoring brings together AppDynamics' application monitoring service with Verizon's management service by allowing customers to connect to their AppDynamics environment through Verizon's web portal. This feature option expands on the Network APM-Application Monitoring feature to include real-time performance monitoring of Customer's business processes from the code execution level of an application to the customer experience.

1.2.5. **Service Management Levels.** The availability of the Service Management levels for each Network APM feature option is listed in the chart below.

	Monitor and Notify	Full Service
Network APM-Server	✓	✓
Network APM-Application Monitoring	✓	
Network APM-End User Experience (Network APM-End User Experience-IP Flow and Network APM-End User Experience-Synthetic)	✓	
Network APM-Business Process Application Monitoring	✓	

1.2.5.1 **Network APM Monitor and Notify.** Network APM Monitor and Notify provides the following features and related activities:

- **Monitoring.** Verizon monitors features 24 hours a day, 7 days a week, using simple network management protocol (SNMP), internet control message protocol (ICMP – commonly referred to as a ping), and sometimes Windows Management Interface (WMI) for status and error conditions (e.g., SNMP trap messages or SNMP-based queries to operational state-of-target Customer CPE).

- **Notification.** Verizon will create a trouble ticket and attempt to notify Customer's designated point of contact within 15 minutes of Verizon's determination of a feature failure. Once the non-Verizon issue has been resolved by Customer, Verizon will close the ticket.

- **Reporting.** Upon Customer's order, Verizon will work with Customer to define the reporting views it requires for the applications monitored by Verizon. Selected reporting views will be made available via the VEC.

- **Verizon Enterprise Center.** Verizon will provide a web portal on the Verizon Enterprise Center (VEC) or other similar website provided by Verizon from time to time. The VEC provides a secure, scalable, consolidated view of Customer Network information 24 hours a day, 7 days a week and provides access to project status, contact information, and information about Network APM. The VEC can be accessed at: www.verizonenterprise.com.

1.2.5.2 **Network APM Full Service.** Network APM Full Service provides the following in addition to Network APM Monitor and Notify:

- **Monitoring and Management (Network APM–Server–Hardware).** Verizon identifies logical or physical issues with Customer's server hardware (with Customer's cooperation) whether the issue arose due to actions by Verizon, Customer or third parties. If the problem is hardware-related, Verizon Operations will notify Customer and affected third parties to remediate.

- **Monitoring and Management (Network APM–Server-Operating System).** Verizon identifies logical issues with Customer's Server Operating Systems (with Customer's cooperation) whether the issue arose due to actions by Verizon, Customer or third parties. Verizon will perform remote patch management on either Windows or Linux Operating Systems at Customer's direction and pursuant to Customer's IT policies.

1.2.5.3 **Managed Take-Over** Where available, pursuant to Managed Take-Over, Verizon will review, optimize or take over monitoring and/or management of Customer's existing Network APM related components in 2 steps – due diligence and impact assessment.

- **Due Diligence.** As a part of its due diligence Verizon will collect and analyze the logical and physical characteristics for Customer's existing systems, as well as its related equipment or assets. All system data must be provided by Customer, including, but not limited to, Customer interviews, Customer-provided diagrams, and Customer Site-specific information.

- **Impact Assessment.** The Statement of Requirements for Managed Take-Over (SOR) is produced by Verizon in cooperation with Customer. The SOR (i) provides the inventory of Customer's current systems as it relates to the engagement of Network APM; (ii) identifies any physical/logical activities required to bring those system networks under monitoring and/or management by Verizon, and (iii) identifies any gaps associated with facilitating the remote monitoring of the system components. Verizon provides Managed Take-Over on a per-project basis in accordance with an SOR that contains appropriate terms and conditions mutually agreed by Customer and Verizon.

1.3 **Customer Responsibilities**

1.3.1 **Change Management.** Customer will manage changes to the Customer Network and any routine maintenance of Managed Devices. Customer will also inform Verizon of any changes to the Customer Network that affect monitoring of the Customer Network including, but not limited to, removing managed components (such as a physical server, operating system, or data within an application, e.g., a database) from service. Customer is also responsible for backing up the managed component configurations.

1.3.2 **Provision of Managed Devices.** Verizon may require Customer to upgrade Managed Devices to meet the standards required by Verizon to provide Network APM. To facilitate data collection methods for monitoring, Customer will provide user authentication into its enterprise directory services, e.g., Active Directory or LDAP. In such cases, Network APM does not include the administration of such enterprise directory services.

1.3.3 **Software License Obligations.** If Customer selects Network APM-End User Experience-Synthetic, Customer will comply, and will require its end users to comply, with all obligations set forth in any applicable end user software licenses among those set forth below.

1.3.4 **Customer Notifications.** Customer will report detected service failures and provide information to the Verizon Customer Service Center.

1.3.5 **Back Up**. Customer is responsible for the adequacy of any duplication or documentation for its electronic files at all times.

1.3.6 **Physical Verification of Managed Devices.** Upon Verizon's request, Customer will reboot the Managed Devices, provide the LED light statuses of the Systems, provide the LED light statuses of the third party telecommunications provider network terminating unit (Telco NTU) where applicable, verify equipment power, verify if all cables are securely connected, and insert a loopback plug.

1.3.7 **Customer-Initiated Site Maintenance.** Customer will notify Verizon via a Customer Maintenance Change Management Request of any maintenance (powering down the site/managed device/managed system/Telco NTU, resetting equipment, re-cabling, physical equipment move) that may affect the operating status of the Managed Devices. Customer will notify Verizon of any system-, operating system-, or application-related changes that affect the topology dependencies.

1.3.8 **Netflow.** Customer will be responsible for configuring Customer's CE device with IP flow configuration, in order to receive NetFlow reports. In order to receive the Network APM–End User Experience–IP Flow feature reporting, Customer must activate this feature on at least 1 interface per customer-edge (CE) device, and only CE devices with IP flow configuration will receive NetFlow reporting.

1.3.9 **Customer Responsibilities for Monitor and Notify Service**. Customer will resolve both logical and physical faults, and fault isolation and associated downstream attached components (e.g., cabling, servers, non-managed switches, firewalls, and personal computers). Customer is responsible for the management of all equipment connected to managed components that are out of the scope of Network APM and for software licenses associated with managed components. Customer will provide to Verizon the SNMP read access community string and WMI authentication for all Managed Devices.

1.3.10 **Customer Responsibilities for Full Service.** For Network APM – Server for hardware, if required to support Full Service, Customer will facilitate the execution of a Letter of Authority (LOA) allowing Verizon to work with any third party CPE maintenance providers. For Network APM – Server for operating systems, Customer will be responsible for providing Verizon with patch updates and identifying which target systems must be updated.

2. **SUPPLEMENTAL TERMS**

2.1 **Customer Data Associated with Network APM–End User Experience–IP Flow**

2.1.1 **European Union.** Verizon will, by virtue of providing Network APM–End User Experience–IP Flow to Customer in the European Union, come into possession of Customer Data in connection with the provision of Network APM–End User Experience–IP Flow. Verizon will act as Data Processor, as defined in the EU Data Protection Directive 95/46 (the Directive), on behalf of the Customer in providing Network APM–End User Experience–IP Flow.

2.1.2 **U.S.** If Customer chooses to use Network APM–End User Experience–IP Flow in the U.S., Customer will be considered a data controller as that term is used in the Data Protection Act 1998 and the Privacy and Electronic Communications Regulation 2003, and Customer is subject to all obligations applying to a data controller under those laws and other applicable laws and regulations. Verizon, while processing any resulting data on behalf of Customer, disclaims all responsibility for the decision to activate the feature, the manner in which such data is used by Customer, and the obtaining of Customer's end users' consent. Verizon will not process such data for any purpose other than to provide the Service to Customer.

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2.2 **Data Loss.** Neither Verizon nor its designees are responsible or liable for data or files lost during the performance of Network APM.

2.3 **License Grant.** Verizon hereby grants to Customer, and Customer hereby accepts, a non-exclusive, non-transferable, revocable license to access and use Network APM solely for Customer's internal business purposes (the "License"). Verizon will provide Customer with proprietary software and documentation, including third party software and certain open source software (OSS)[1] (collectively, the "Software") to enable Customer's use of Network APM in accordance with the License. Customer may authorize an unlimited number of its employees and contractors (the "Authorized Users") to use Network APM pursuant to the License, provided that, Customer shall be responsible for ensuring that all Authorized Users abide by the License and the terms set forth in Sections 2.3 through 2.6 of this Agreement (the "Required Terms"). Network APM includes access by Customer and its Authorized Users to the results generated by Network APM (the "Content"). Pursuant to the License and specific user privileges granted by Verizon, Customer and its Authorized Users are permitted to view, print and/or download the Content solely for Customer's internal business purposes. No part of the Content is intended to constitute advice and should not be relied upon when making any decisions or taking any action of any kind. In order to access and use Network APM, the computer, phone or other device ("Device") used by Authorized Users must meet the minimum specifications detailed in the Verizon description of service. Verizon reserves the right to suspend, withdraw, discontinue or change all or any part of Network APM without notice or liability.

[1]The license grant to OSS is pursuant to the following licenses:
Cryptographic software libraries:
- OpenSSL (http://www.openssl.org) to ensure secure communications with the Analytics Cloud.
- PyCrypto (http://www.pycrypto.org) to encrypt configuration information locally on the device on which the Digital User is installed.

Open-source software libraries:
- Python 2.7, licensed under the Python Software Foundation License Version 2 (https://www.python.org)
- pywin32, licensed under the Python Software Foundation License (https://sourceforge.net/projects/pywin32/)
- TKInter, licensed under the Python Software Foundation license (http://tkinter.unpythonic.net/wiki/Tkinter)
- beautifulsoup4, licensed under the MIT license (http://www.crummy.com/software/BeautifulSoup/)
- html5lib, licensed under the MIT license (https://pypi.python.org/pypi/html5lib)
- six, licensed under the MIT license (https://pypi.python.org/pypi/six/1.10.0)
- psutil, licensed under the BSD3 license (http://psutil.googlecode.com)
- lxml, licensed under the BSD3 license (http://lxml.de/)
- Tcl/Tk8.5, license based on the BSD license (https://www.tcl.tk/software/tcltk/license.html)
- curl, licensed under the MIT/X license (http://curl.haxx.se)
- pyCurl, licensed under the MIT/X license (https://github.com/pycurl/pycurl)
- sqlite3, in the public domain (https://sqlite.org/)
- pacparser, licensed under the LGPL3.0 license (http://code.google.com/p/pacparser)
- cx_freeze, licensed derived from the Python Software Foundation License (https://anthony-tuininga.github.io/cx_Freeze/)
- cx_logging, specific license (http://cx-logging.sourceforge.net/LICENSE.txt)

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2.4 **License Restrictions.** Except as expressly permitted by the License, applicable OSS licenses, or local law, Customer shall not (and shall ensure that its Authorized Users and third parties do not):

- copy, modify, adapt, merge, combine, alter, enhance, translate, or create derivative works of, Network APM or the Software (or any part thereof), or permit others to do so;
- disassemble, decompile, reverse engineer or otherwise attempt to derive or access the source code of any proprietary software used by Verizon and/or its provider to provide Network APM, or permit others to do so;
- remove, alter or destroy any proprietary markings, copyright notices, confidential legends or any trademarks or trade names of Verizon or its providers placed upon or contained within Network APM and/or the Software;
- fail to properly supervise and control use of Network APM and/or the Software;
- sublicense, sell, resell, rent, lease, transfer, timeshare, assign, distribute, display or disclose to any third party, commercially exploit Network APM and/or the Software (including operating as a service bureau or providing access to Network APM and/or the Software as an application service provider), or otherwise make Network APM and/or the Software (or any part thereof) available to any third party;
- use the Software in violation of any applicable laws and regulations (including without limitation any export laws, restrictions, national security controls and regulations); or
- cause the decompiling, disassembly, or reverse engineering of any portion of the Software, or attempt to discover any source code or other operational mechanisms of the Software.

Customer shall not (and shall ensure that its Authorized Users and third parties do not) use Network APM:

- to engage in deceptive or misleading practices;
- to harm, threaten, abuse, harass, embarrass, defame or libel another person, or in any way do anything that invades someone's privacy or is obscene, offensive, objectionable, unacceptable, discriminatory or damaging;
- to gather, extract, download, reproduce, use and/or display any information, content, material or data, whether by use of automated programs, robots, web crawlers, spiders, data mining, trawling or other "screen scraping" software or systems without Customer's prior written consent; or
- to damage, interfere with or disrupt access to Network APM, or do anything which may interrupt or impair their functionality, including, without limitation, by uploading or otherwise distributing files that contain viruses, corrupted files, Trojan horses, or any other similar software or programs that may be used to access, modify, delete or damage any data files or other computer programs used by Verizon or other users of Network APM.

2.5 **Authorized User Registration.** Authorized Users may complete a registration process which includes the creation of a user identifier and/or password. Authorized Users are solely responsible for ensuring that their user identifiers and passwords are kept confidential, and shall not disclose to, or allow user identifiers and/or passwords to be used by, any third party. In the event that Customer or any Authorized User has reason to believe that any user identifier and/or password is no longer secret, they will notify Verizon immediately. Customer reserves the right to disable any user identification code or password at any time without notice if an Authorized User fails to comply with the Required Terms.

2.6 **Customer Data.** Verizon may collect information from Authorized Users during registration, or through communications with Authorized Users by phone, e-mail, or otherwise. Verizon also collects measurement data, which includes the IP address of the applicable Device and the IP address used to connect the Device to networks, applications, and services. The measurement data is analyzed to provide Customer with information regarding the digital performance of its products and/or services including, but not limited to, the Content. When Authorized Users

access the Content, Verizon may automatically collect technical data including login information, browser type and version, time zone setting, browser plug-in types and versions, operating system and platform. All the foregoing will be included in the definition of Customer Data. Verizon shall inform Authorized Users regarding the Customer Data collected, and the intended use and disclosure thereof.

2.7 **End User Agreement Associated with Network APM-Business Process Application Monitoring.** Customer's use of Network APM-Business Process Application Monitoring is pursuant to the AppDynamics End User License Agreement located at www.appdynamics.com/download-eula/, and governs Customer's use of Network APM-Business Process Application Monitoring.

2.8 **Data Collection Associated with Network APM-Business Process Application Monitoring.** Customer agrees that it will not use Network APM-Business Process Application Monitoring with applications that collect or store personally identifiable information or with applications that must comply with any data privacy regulations including, but not limited to, PCI-DSS, Gramm-Leach-Bliley (GBLA), HIPAA, CA SB1386, FISMA or GDPR. Customer is responsible for limiting or restricting the collection of sensitive data by Network APM-Business Process Application Monitoring and Verizon is not responsible or liable for any damages associated with data collected by Network APM-Business Process Application Monitoring.

3. **SERVICE LEVEL AGREEMENT.** The SLA for Network APM may be found by clicking on the following: Network APM SLA (at www.verizonenterprise.com/external/service_guide/reg/cp_napm_sla.pdf)

4. **FINANCIAL TERMS.** Customer will pay charges for Network APM specified in the Agreement, including those below and at the following URL: www.verizonenterprise.com/external/service_guide/reg/applicable_charges_toc.htm. Charges below are in U.S. dollars and will be billed in the invoice currency of the associated service.

4.1 **Administrative Charges**

Administrative Charge	Charge Instance	NRC
Expedite Fee	Upon Customer Request	$1,100.00
After Hours: Installation	Per site	$600.00

4.2 **Optional Change Management.** Customer will pay the charges below for Optional Change Management (OCM), which are not covered by the Standard Change Management activities shown in the VEC and included in the MRCs for Network APM.

Network APM OCM Charges		
Change	Change Instance (Charged per Server or Operating System unless noted)	NRC
After Hours: Changes	Per request per site	$600.00
Implementation (Modify Existing)	Change per Server or Operating System	$50.00
Design (Single Feature/Protocol)	Change per Server or Operating System	$250.00
Design Plus (Multiple Feature/Protocol)	Change per Server or Operating System	$400.00

4.3 **IP Addresses.** Verizon may use secondary IP addressing if Customer is using unregistered

IP address space. If Customer does not allow secondary IP addressing, Customer will pay reasonable costs for a dedicated management domain or an IP proxy hardware solution.

5. **DEFINITIONS.** The following definitions apply to Network APM, in addition to those identified in the Master Terms and the administrative charge definitions at the following URL: www.verizonenterprise.com/external/service_guide/reg/definitions_toc_2017DEC01.htm

After Hours	Outside of the hours between 9.00am and 5.00pm on a Business Day in the time zone of the Customer Site receiving Network APM.
Customer Network	A collection of Managed Devices and the network they are connected to.
Managed Devices	Items of CPE that have been designated as supported by Network APM.