ServiceWatch Pilot

ServiceNow Pilots offer customers the ability to quickly assess the value of ServiceNow applications for a limited period of time. The ServiceWatch Pilot includes (1) access to a temporary non-production instance of ServiceWatch; and (2) professional services to help Customer set up ServiceWatch to model one (1) business service and visualization of its health in a hosted environment. Customers with a purchased use authorization of ServiceWatch are not eligible for the ServiceWatch Pilot.

ServiceWatch Use Authorization

ServiceNow hereby authorizes Customer to use ServiceWatch in a hosted environment subject to the terms in *Exhibit – Authorization to Use ServiceWatch*.

ServiceWatch Pilot Project Overview

The ServiceWatch Pilot includes services to implement ServiceWatch and integrate it into Customer's event monitoring software. The following is a list of project tasks completed during this Pilot:
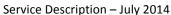
Project Task	Description
Project Kick-off and Planning	Meeting to establish prerequisites and plan to complete them before the implementation and business service modeling can begin. Establish project schedule and task details.
Implementation and Business Service Modeling	Configuration of ServiceWatch, installation of collectors and discovery and modeling of 1 supported business service in Customer's environment.
Event Monitoring Integration	Integration with up to 3 monitoring tools and/or event consoles to receive events and event properties. Store and manage events in ServiceWatch.
Event Binding and Impact Configuration	Configure event binding rules in ServiceWatch and define how the overall service health is calculated from the incoming events.
Dashboard Configuration	Configuration of ServiceWatch dashboard to provide single view into business service health to assist in root cause analysis.

ServiceWatch Configuration

As part of this project, ServiceNow will discover and model one (1) business service using ServiceWatch. The business service model that will be discovered and generated as a part of the ServiceWatch Pilot will include the following details:

- Application components of the business service and relationships between them
- Servers upon which the discovered application components run
- Network infrastructure that supports the business service including layer 2 connectivity between each application component of the business service
- Virtualization layer and components that support the business service components
- Other topological constructs such as server farms and operating system clusters

ServiceWatch Pilot Project Roadmap and Deliverables

Project Kick-off and Planning

ServiceNow will conduct a project kick-off meeting to discuss the ServiceWatch Pilot prerequisites (see below). Additional planning meetings may be scheduled to ensure that the prerequisites are met before the implementation can begin. The result of these planning meetings will be a detailed project plan including:

1. All project tasks, task ownership and dependencies
2. Project schedule
3. Detailed deployment plan including:
   a. Number of required ServiceWatch collector servers
   b. Placement of ServiceWatch collector servers
   c. Network and security considerations

Implementation and Business Service Modeling

ServiceNow will provision a temporary ServiceWatch instance in a hosted environment. ServiceNow will conduct a virtual meeting session (using Webex or compatible conferencing software) to assist Customer in installing the ServiceWatch collector software and to validate credentials. The goal of this session is to verify that all of the required prerequisites are in place and there are no blockers.

During the ServiceWatch Pilot, ServiceNow will use the ServiceWatch discovery engine to model one (1) supported business service. The supported business service must include only items listed in the "ServiceWatch - Supported Systems and Applications" guide available on the ServiceNow Wiki. Models will include the following details:

- Application components of the business service and relations between them
- Servers upon which the above application components run
- Network infrastructure that supports the business service including layer 2 connectivity between each two application components of the business service
- Virtualization layer and components that support the business service components
- Other topological constructs such as server farms and operating system clusters

Event Monitoring Integration

ServiceWatch will be integrated with up to three (3) Customer provided and previously implemented monitoring tools and/or event consoles that are accessible from ServiceWatch. These integrations will use existing ServiceWatch integrations listed in the "ServiceWatch - Supported Monitoring Tools" guide available on the ServiceNow Wiki. If Customer's monitoring tool or event console is not supported by an existing ServiceWatch integration, Customer must configure their monitoring tool or event console to send an SNMP trap to ServiceWatch.

Event Binding and Impact Configuration

ServiceNow will conduct a working session with Customer to define event binding (association) rules and impact tree settings for configuration items (CIs) discovered by ServiceWatch. ServiceNow will configure ServiceWatch to define service health calculation based on incoming events and CI status.

ServiceNow will demonstrate how to configure ServiceWatch with Customer defined notification rules, notification message content, and message distribution and enable Customer to make additional configurations.

Dashboard Configuration

ServiceNow will conduct a working session with Customer to configure the ServiceWatch dashboard to aggregate the reporting into a single view. The dashboard will be configured to display business service health (as calculated from the incoming events) and provide capability to drill down into specific business service topologies in order to explore potential problem root causes.

ServiceNow Provided Resources

ServiceNow will provide the following resources for the project:

ServiceNow Resource	Responsibilities
Engagement Manager	Lead project planning, provide implementation expertise, follow the ServiceWatch Pilot project plan, allocate appropriate resources from ServiceNow, and act as a single point of contact. Facilitate one (1) status call to track the target project progress.
Technical Consultant	Undertake the application configuration and integration and assist with knowledge transfer to Customer.

Required Customer Resources

Customer will provide the following resources and make them available throughout the duration the project (note that multiple responsibilities may be filled by the same Customer personnel):

Customer Resource	Responsibilities
Project Manager	Responsible for the project and meet regularly with the ServiceNow engagement manager to review progress and resolve issues.
Event Management Administrator	Resources with technical expertise to establish integrations with monitoring tools and/or event consoles.
Business Service Owner(s)	Subject matter expert(s) responsible for the correct and complete definition of the business service and underlying technical architecture to be modeled in ServiceWatch.
Security Team Member	Security team member capable of making decisions regarding necessary credentials and permissions to allow ServiceWatch to operate.

ServiceWatch Pilot Prerequisites

Customer must meet all requirements listed in *Exhibit – ServiceWatch Implementation Prerequisites*, attached herein, and the following:

Business Services

Modeled business service must comprise of systems and applications supported by ServiceWatch as listed in the "ServiceWatch - Supported Systems and Applications" guide available on the ServiceNow Wiki.

ServiceWatch Collector Server Requirements

The ServiceWatch Pilot will support the installation of up to three (3) ServiceWatch collector servers.

Per-Service Data Gathering

Customer must complete the Business Service Data Gathering Template for the business service to be modeled during the ServiceWatch Pilot prior to the start of this engagement.

Technical Definitions

Please refer to the ServiceNow Wiki for technical definitions for the ServiceNow applications and platform at http://wiki.service-now.com.

Packaged Service Terms and Conditions

Based on the scope of services and assumptions set forth above, the services herein shall be performed on a fixed price basis plus expenses stated on the ordering document. Customer agrees to pay the total fee amount on the ordering document regardless of the total number of effort days ServiceNow takes to complete the project. ServiceNow will provide the services as described herein limited to those ordered on the ordering document: (i) if Customer is purchasing directly from ServiceNow, on the terms and conditions in the Order Form and the Master Ordering Agreement incorporated by reference herein from http://www.servicenow.com/schedules.do; or (ii) if Customer is purchasing from a ServiceNow authorized reseller ("Reseller"), on the terms and conditions in the use authorization as issued by ServiceNow and the Subscription Service Agreement incorporated by reference herein from http://www.servicenow.com/schedules.do. ALL ORDERS ARE NON-CANCELLABLE, NON-REFUNDABLE, AND NOT SUBJECT TO ACCEPTANCE. ALL SERVICES WHEN ORDERED AND ACCEPTED BY SERVICENOW MUST BE CONSUMED WITHIN 12 MONTHS FROM THE EFFECTIVE DATE OF THE ORDERING DOCUMENT. SERVICES ARE NOT INCLUDED IN THIS OFFERING UNLESS SPECIFICALLY IDENTIFIED AS INCLUDED IN THIS DOCUMENT. ANY PURCHASED AND UNUSED SERVICES SHALL EXPIRE WITH NO FURTHER CREDIT OR REFUND AND SHALL HAVE NO VALUE THEREAFTER. Customer shall reimburse ServiceNow or Reseller for all authorized, reasonable and verifiable travel expenses incurred during the performance of the professional services, training and other services.

For scheduled service days that are canceled or rescheduled by Customer with fewer than ten (10) business days prior written notice to ServiceNow, Customer shall be charged and pay for (a) any travel expenses that cannot be canceled or refunded, and (b) the canceled/rescheduled service days if ServiceNow is not able to reassign the personnel to another project. For the purposes of this section, email to the ServiceNow personnel assigned to this project will be sufficient as written notice.

Exhibit – ServiceWatch Implementation Prerequisites

This exhibit describes the credentials and connectivity considerations needed for the discovery process of ServiceWatch. ServiceWatch performs business service discovery without the use of agents. Therefore, ServiceWatch needs credentials to access the components to be discovered. ServiceWatch is built out of two (2) major components: a ServiceWatch server and a set of collector servers. The collector servers are the components that perform business service discovery and communicate the results to the ServiceWatch server over HTTPS. This architecture enables ServiceWatch to discover business services that span security zones.

The following are the requirements for a successful ServiceWatch implementation:

Client

For launching the ServiceWatch UI, a browser with Flash Player 10.1 or higher is needed. Internet Explorer (8 or higher), Mozilla Firefox and Google Chrome Browsers are supported.

Collector Server Requirements

Hardware

A dedicated server (virtual or physical) with the following minimum characteristics:

- 1 CPU
- 2GB memory
- 20GB disk space

Software

Customer will provide the following software loaded on each data collector server:

- Windows 2008 R2 64 bit
- .Net framework version 3.5 SP1

Business Service System Operating System Credentials

For ServiceWatch discovery to work the following business service system server credentials are needed:

- Windows servers: access is done via WMI and an administrator user is required (either local admin or domain admin)
- UNIX servers: access is done via SSH with either of the following credentials:
    - Non-root user & password and using the 'sudo' utility to run selected commands as root
    - Non-root user & password + root password for running selected commands with 'su'
    - Root user & password

- A certificate and optionally a passphrase may be used in addition or instead of a password for UNIX servers

Network Configuration

The collector(s) within Customer's network need to be able to initiate communication to ServiceNow's ServiceWatch network at address servicewatch.servicenow.com on port 443 (using HTTPS protocol).

Optionally, the collector may use a proxy to communicate with the host server (if such proxy exists) using either basic or NTLM authentication.

Network Device Credentials

Access to network devices (like load balancers or routers) is done via SNMP v1/v2c/v3 and a read only community string is needed (or proper credentials for SNMPv3). The network devices should be configured to allow SNMP access from the ServiceWatch server, in case access lists are active.

Virtualization Credentials

- VMware: a user with read only permission is required for access to VMware vCenter
- Citrix Xen: a user with read only permission is required for access to Citrix XenCenter
- Solaris Zones: OS level credentials (as defined above) are required for each global zone

AIX LPARs

In order to discover virtualization on AIX systems, we require the following credentials:

Access to HMC (Hardware Management Console)

A user that can login to the HMC and run the following commands:

- lssyscfg
- lshmc

Access to VIOS (Virtual I/O Server)

A user that can login to the VIOS and run the following commands via sudo:

- /usr/ios/cli/ioscli lsdev
- /usr/ios/cli/ioscli lsmap
- lstcpip

Specific Application / Device Level Credentials

The following applications and/or devices require additional credentials.

F5 Load Balancer

In addition to SNMP access, when using iRules, a read only BigIP shell user is required to access the load balancer over SSH.

Cisco ACE

A read only user with a network monitor role is required to access the load balancer over SSH.

Microsoft SharePoint & SSRS (SQL Server Reporting Server)

A user that has permissions within SharePoint/SSRS to access the administration page is required.

Microsoft CRM

The operating system user must be an administrator within CRM.

Websphere MQ

An operating system user like mqm is required, that can run commands like runmqsc or dspmq.

Microsoft SSIS (SQL Server Integration Server)

The user used by ServiceWatch should be an administrator of SSIS.

Microsoft Exchange

The user used by ServiceWatch should be an administrator of Exchange. For versions 2010 and above, an application level user and password to the admin page are required.

Microsoft NLB (Network Load Balancing)

ServiceWatch requires a password for remote administration (which should be enabled).

Oracle RAC

The user used by ServiceWatch should be able to run the crs_stat command using sudo.

Tibco EMS

An application level user and password to Tibco EMS are required to be able to authenticate to command lines like tibemsadmin.

Websphere Data Power

Read only user within Data Power that has access for all the domains and can run commands via SOAP. Read only community for access through SNMP.

Citrix XenApp (version <= 4.5)

Permission to access XenApp from VBscript

Citrix XenApp (version > 4.5)

Permission to access XenApp from PowerShell

Storage Prerequisites

Network Appliance Filer Storage Array

A read only user for login through HTTP to the NetApp Filer is required to read all configuration data (e.g. volumes, aggregates, network, HBAs, shares, etc.). The following are the specific capabilities that are required:

- login-http-admin
- api-system-get-info
- api-disk-list-info
- api-lun-list-info

- api-aggr-list-info
- api-volume-list-info
- api-cifs-share-list-iter-start
- api-cifs-session-list-iter-start
- api-cifs-session-list-iter-next
- api-nfs-exportfs-list-rules
- api-fcp-adapter-initiators-list-info
- api-fcp-adapter-list-info
- api-lun-map-list-info
- api-cifs-share-list-iter-next

Also, there needs to be read only SNMP access to the NetApp Filer.

EMC Symmetrix Product Line (Symmetrix/DMX/VMAX)

An installation of SYMCLI should be available on a server that is connected to all Symmetrix storage arrays.

The operating system user has to be able to execute the following SYMCLI commands:

- symcfg
- symdev
- symmaskdb
- symaccess

EMC Control Center (ECC)

Access to EMC ECC is done using queries to the ECC repository, therefore a username and password to the ECC Oracle repository is needed.

Network Connectivity

Host to collector communication

Windows host

The ServiceWatch collector is communicating with hosts using WMI (Windows Management Instrumentation) which runs on top of RPC. This means that the host may allocate ports in the range of 1024-65535 arbitrarily.

If the collector is located across a firewall from the host we have three options:

1. Open the firewall for ports 135,1024-65535
2. Configure the server to make WMI work with fixed port (http://support.microsoft.com/kb/897571/)
3. Place an additional collector in the zone of the host

If option 1 or 2 is selected, the following additional ports should be opened in the firewall:

- Access to admin share (e.g. C$) and TCP port 445 open (SMB over TCP port)
- HTTP access from the host to the collector. By default access is on port 8585 (configurable).

Unix/Linux host

SSH port (TCP port 22, configurable) should be open from collector to host.

Network devices

SNMP port (UDP port 161 by default, configurable) should be open from collector to host.

Collector to Server Communication

Collector communicates with the server using HTTPS on port 8443. Port 8443 should be open for communication initiated by the collector. This port is configurable and can be changed.

Browser to Server Communication

UI communicated with the server using HTTPS. By default we use port 8080 (configurable).

Server to 3rd Party Systems

VMware vCenter: ServiceWatch communicates with vCenter using HTTPS (port 443).

Citrix XenCenter: ServiceWatch communicates with XenCenter using HTTP over port 80.

Sudo Configurations on Unix Systems

Linux

The following commands are used via sudo on Linux:

- cat
- ls
- netstat (when executed not as superuser the command does not return the process ID)
- dmidecode (getting serial number of a machine) – optional
- gcore

Below is an example line in the sudoers file:

- qauser ALL=/bin/netstat, /bin/cat , /bin/ls, /usr/sbin/dmidecode, /usr/bin/gcore

Additional commands are needed for storage discovery:

- dmidecode
- fdisk
- iscsi-ls
- lvs
- lspci
- find /sys/class/scsi_host/ -name 'port_name' -print -exec cat {} \;

- find /sys/block/ -name device -exec ls -l {} \;

If a certain command exists in several places on the machine, ServiceWatch will use the following search path to find it. The sudoers file should be updated accordingly:

- /usr/local/sbin
- /usr/local/bin
- /sbin:/bin
- /usr/sbin
- /usr/bin

Solaris

The following commands are used via sudo on Solaris:

- cat
- chmod +x /tmp/nbltmp/inq) (only if storage is needed)
- gcore
- ifconfig (if not executed as super user, it doesn't bring the MAC addresses)
- ksh
- ls
- mdb (in global zone only)
- pwdx
- pargs
- /usr/ucb/ps
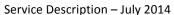- zonecfg (in global zone only)
- Either of:
  - dtrace
  - lsof

Additional commands are needed for storage discovery:

- fcinfo
- isainfo (only if storage is needed)
- iscsiadm list – only if iSCSI is being used
- vxdisk list – only if Veritas Volume Manager is installed
- find /sys/class/scsi_host/ -name 'port_name' -print -exec cat {} \; – only if Emulex HBA is used
- find /sys/block/ -name device -exec ls -l {} \; – only if Emulex HBA is used

Below is an example line in the sudoers file:

- qauser   ALL=/usr/bin/mdb, /usr/bin/pwdx, /usr/bin/pargs, /sbin/ifconfig, /usr/bin/ls, /usr/bin/cat,   /usr/bin/chmod +x /tmp/nbltmp/inq (for storage detection only) , /usr/bin/gcore, /usr/bin/isainfo

Note: if relevant applications are running on Solaris local zone, same access rights should be provided on the corresponding global zone.

AIX

The following commands are used via sudo on AIX:

- cat
- gencore
- ls
- ps
- procwdx (get working directory of a process)
- rmsock (find process listening on a specific port)
- bootinfo (find the architecture of a server, i.e. 32/64 bit) – optional

Below is an example line in the sudoers file:

- qauser   ALL=/bin/procwdx, /bin/cat , /bin/ls, /usr/sbin/rmsock, /usr/bin/ps, /usr/sbin/gencore

HP-UX

The following commands are used via sudo on HP-UX:

- cat
- ls
- Either of:
    - pfiles
    - lsof

Exhibit – Authorization to Use ServiceWatch

1.   **Internal Evaluation Use and Restrictions.** Customer desires to receive, and ServiceNow is willing to provide, for internal evaluation purposes on Customer's non-production environment only, access to a hosted copy of ServiceNow ServiceWatch (the "Evaluation Product"). Customer shall not: (i) commercially exploit the Evaluation Product by licensing, sub-licensing, selling, re-selling, renting, leasing, transferring, distributing, time sharing or making the Evaluation Product available in the manner of a service bureau; (ii) other than for its own internal evaluation purposes, create derivative works based on the Evaluation Product; (iii) disassemble, reverse engineer or decompile the Evaluation Product or any part thereof or permit others to do so; or (iv) access all or any part of the Evaluation Product in order to build a product or service that competes with the Evaluation Product. Customer shall use the Evaluation Product for evaluation purposes only and not for any other purpose. Customer shall not copy, alter, modify, disassemble, reverse engineer or decompile the Evaluation Product. Customer shall not remove any copyright or other notices from the Evaluation Product. All right, title, property and interest in and to the Evaluation Product, all copies, improvements, modifications and derivative works thereof, related documentation and materials, including ownership of all intellectual property rights therein and thereto, shall remain at all times with ServiceNow and its licensors.

2.   **Term & Termination**. The evaluation period ("Evaluation Period") shall commence on the date of a mutually signed order form for the Evaluation Product and shall end at ServiceNow's sole discretion with five (5) days prior written notice. ServiceNow may send an email to Customer as notice to the foregoing. Upon expiration or termination of the Agreement, ServiceNow shall terminate access to the Evaluation Product by Customer. Notwithstanding the foregoing, Customer is solely responsible for removing any data stored on the Evaluation Product(s) that Customer wants to retain after the Evaluation Period. ServiceNow will not have any obligation or liability with respect to data remaining on Evaluation Product(s). Sections 2 through 9 (inclusive) of this Exhibit shall survive termination or expiration of this Agreement.

3.   **Confidential Information**. ServiceNow and Customer each agree to retain in confidence all information disclosed by a party to the other party pursuant to this Exhibit ("Agreement") which is either designated as proprietary and/or confidential, or by the nature of the circumstances surrounding disclosure, should reasonably be understood to be confidential (the "Confidential Information"). The Evaluation Product(s) and related information received by Customer in accordance with this Agreement shall be ServiceNow's Confidential Information. Each party agrees to: (a) strictly preserve and protect the confidentiality of the other party's Confidential Information; and (b) refrain from using the other party's Confidential Information except as contemplated herein. Confidential Information excludes information that: (i) is or becomes generally known to the public; (ii) was known to the receiving party prior to its disclosure by the disclosing party without breach of any obligation to the disclosing party; (iii) is received from a third party without breach of any obligation to the disclosing party; or (iv) was independently developed by the receiving party. Customer agrees that ServiceNow may use its name in promotional materials and discussions regarding ServiceNow's customer accounts.

4.   **User Suggestions**. ServiceNow shall have a royalty-free, worldwide, non-exclusive, transferable, sub-licensable, irrevocable, perpetual right and license to use or incorporate into a ServiceNow product any suggestions, enhancement requests, recommendations, new software ideas or other feedback provided by Customer relating to the operation of the Evaluation Product.

5.   **Warranty Disclaimer**. SERVICENOW MAKES NO REPRESENTATION, WARRANTY OR GUARANTY, EXPRESS, STATUTORY OR IMPLIED, AS TO THE RELIABILITY, TIMELINESS, QUALITY, SUITABILITY, AVAILABILITY OR ACCURACY OF THE EVALUATION PRODUCT. WITHOUT LIMITING THE FOREGOING, THE EVALUATION PRODUCT IS PROVIDED AS-IS, WITH NO OTHER WARRANTY WHATSOEVER, EITHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

6.   **Limitation of Liability**. IN NO EVENT SHALL SERVICENOW'S TOTAL AGGREGATE LIABILITY ARISING OUT OF OR RELATED TO THIS AGREEMENT, WHETHER IN CONTRACT, TORT, WARRANTY OR UNDER ANY OTHER THEORY OF LIABILITY, EXCEED $0 USD. IN NO EVENT SHALL SERVICENOW HAVE ANY LIABILITY TO CUSTOMER FOR ANY LOST PROFITS (WHETHER DIRECT OR

INDIRECT), LOSS OF USE, COSTS OF COVER, OR FOR ANY INDIRECT, SPECIAL, INCIDENTAL, PUNITIVE, OR CONSEQUENTIAL DAMAGES HOWEVER CAUSED AND, WHETHER IN CONTRACT, TORT, WARRANTY OR UNDER ANY OTHER THEORY OF LIABILITY, WHETHER OR NOT SERVICENOW HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

7.	**No Harmful Use.** Customer shall not: (i) send, store or run software viruses, worms, Trojan horses or other harmful computer code, files, scripts, agents or programs; (ii) interfere with or disrupt the integrity of the Evaluation Product or the data contained therein; or (iii) upload, post, reproduce or distribute any information, software or other material protected by copyright or any other intellectual property right (including the right of publicity and/or privacy) without first obtaining the permission of the owner of such rights.

8.	**Customer Responsibilities.** Customer is solely responsible for (i) monitoring and controlling the activity of each user it authorizes to use the Evaluation Product ("User"), (ii) ensuring User compliance with this Agreement, (iii) ensuring that there is no unauthorized access to the Evaluation Product and notifying ServiceNow promptly of any such access of which Customer becomes aware, and (iv) ensuring that the use of the Evaluation Product is in compliance with all applicable laws and regulations. Customer shall be solely responsible and liable for the acts and omissions of each User.

9.	**General**. Customer may not assign any rights or delegate any duties under this Agreement and any attempt to do so is void and without effect. No modification to this Agreement will be binding unless in writing and signed by an authorized representative of each party. Any express waiver or failure to exercise promptly any right under this Agreement will not create a continuing waiver or any expectation of non-enforcement. If any provision of this Agreement is held to be unenforceable for any reason, such provision shall be reformed only to the extent necessary to make it enforceable. Customer shall in all respects comply with all applicable United States export control laws and regulations. Nothing in this Agreement shall be construed as creating any obligation on the part of either party to enter into any agreement or business relationship beyond this Agreement, or an obligation to refrain from entering into an agreement or business relationship with any third party.