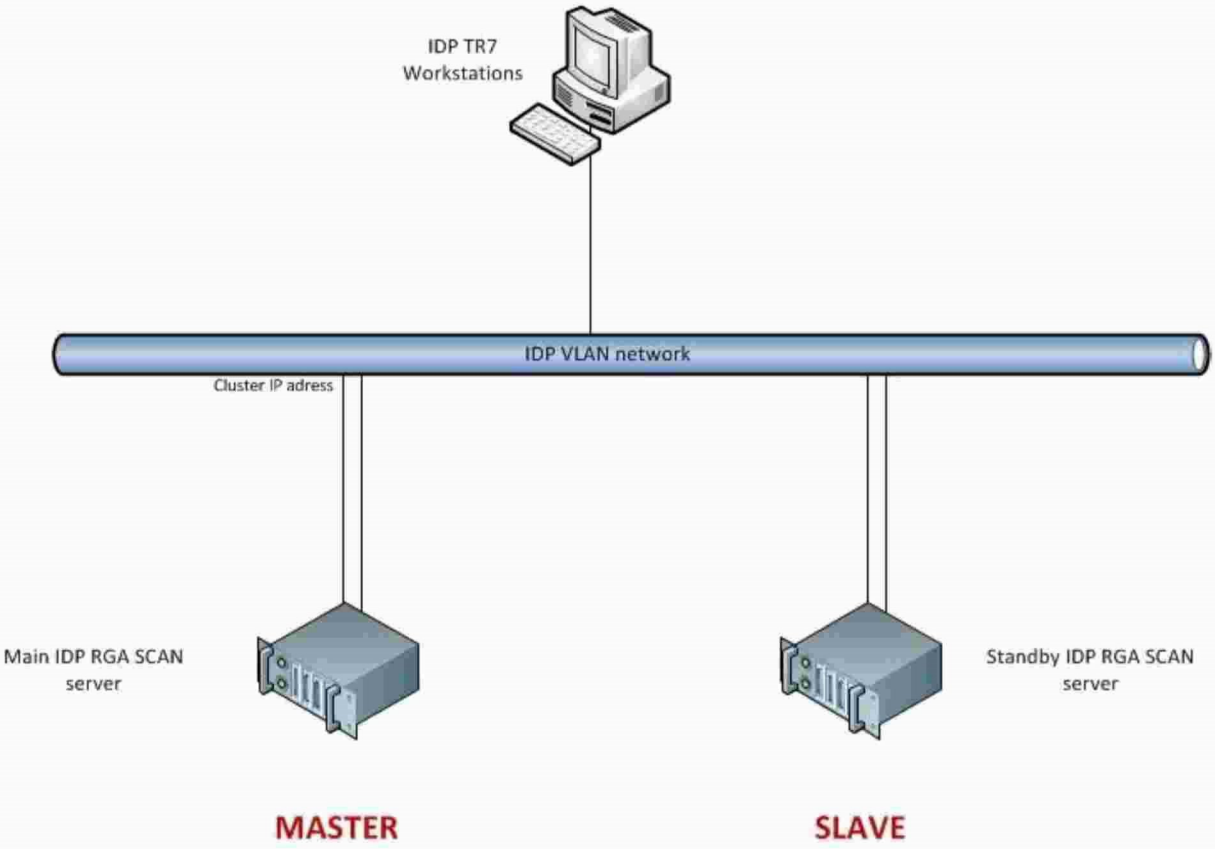


IDP TR7 clients, will all connect to the MASTER server. The SLAVE system will be mainly dormant and not run the application at any time other than at a switchover of the MASTER/SLAVE roles.

5 Requirements

5.1 Requirements for RGA TWR IDP Servers target technology

Following is list of requirements which is followed by our proposal.

RGA_S_01 - Redundant Disks

System shall have RAID controller or controllers supporting RAID 1 mirroring for a minimum of 2 disks or independent SAS controllers allowing logical volume mirroring at the operating system level. If one disk fails then the system will not be impacted and the disk can be replaced simply by removing the defective disk and inserting a disk with no less a capacity of the failed disk.

RGA_S_02 - Disk Capacity

System server shall have at least 2 internal disks for Operating system with capacity of at least 480GB per disk.

RGA_S_03 - Ethernet Redundancy

System shall have on-board Ethernet ports or sufficient PCIe slots to allow Multi-port Gigabit Ethernet cards which can be bound together to give redundancy for IP network connectivity for one or two networks.

RGA_S_04 - Power Redundancy

System shall have redundant Power supplies to prevent system failure in case of loss of single source of power.

RGA_S_05 - Memory

System shall be equipped with at least 32GB of memory to support the Operating system and application allowing for future growth of the usage of the RGA service.

RGA_S_06 - Processor

System shall be equipped with a processor with at least 8 cores. This will be sufficient to run the ATRAK applications allowing for the growth in demands of future requirements.

RGA_S_07 - Operating System

The Server shall be capable of running the Centos 7 or higher Operating System.

RGA_S_08 - The application service shall function in a clustered environment allowing automatic recovery and availability of ip and running services in the event of a failure of one cluster node failure.

RGA_S_09 - KVM resolution

Cluster system shall be equipped with supplementary 19inch monitor resolution 1280x1024

RGA_S_10 - KVM

Cluster system shall be equipped with a KVM rack mounted console (with access for each node)

5.2 Requirements for WALDO/ASTA2 targer technology

1.0-100 - Base H/W Size

The Server partitions shall be based upon a reasonable sized Power 9 Computer Server to be compatible with the existing Power Servers to provide continuity and uniform support. The cluster nodes shall be Rack mountable with maximum 4U Height. The system shall be equipped with the following resources

COMPONENT	DESCRIPTION
PROCESSOR	MINIMUM OF 8 CORES FOR SCALABILITY
MEMORY	256 GB
O/S	CAPABLE OF RUNNING AIX 7 OPERATING SYSTEM OR SIMILAR.

1.0-105 - Partitions

The Systems shall have capability of running multiple partitions through either dedicated resources mode, where communications adapters and disks are allocated directly to the partition, or through shared resource controllers. There shall be a facilities to run 4 partitions on each of the servers.

1.0-110 - Redundant Disks

The Server System shall have RAID controller or controllers supporting RAID 1 mirroring for a minimum of 2 disks or independent SAS controllers allowing logical volume mirroring at the operating system level. If one disk fails then the system will not be impacted and the disk can be replaced simply by removing the defective disk and inserting a disk with no less a capacity of the failed disk.

1.0-120 - Disk Capacity

System server shall have at least 2 internal disks for each of the two partition's Operating systems with capacity of at least 300GB per disk.

1.0-130 - Ethernet Redundancy

Each Server shall have Processor on-board Ethernet ports or sufficient PCIe slots to allow 4 separate Multi-port Gigabit Ethernet cards which can be bound together to give redundancy for IP network connectivity for one or two networks for both partitions.

1.0-140 Power Redundancy

Each Server shall have redundant Power supplies to prevent system failure in case of loss of single source of power.

1.0-150 Memory

The system shall be equipped with 256 GB of memory to support the Operating system and application allowing for future growth of the usage of the services.

1.0-160 Management

The system shall be equipped with two Management interfaces, for redundancy, which will be capable of delivering the installation, configuration, operation and monitoring of the servers. The consoles shall be administrative tools for controlling and monitoring the Servers. The Management interface shall allow the servers to be powered on/off remotely.

1.0-170 Processor

The server shall be equipped with a processor with at least 8 cores. This will be sufficient to run the AP, DB, IDP AP and NIM LPARs.

1.0-180 Disk I/O Cards

The server shall be equipped with min 4 Disk I/O cards e.g. fibre channel for connecting to the Disk Storage. This will give connectivity to the upgraded storage in a redundant configuration upon both partitions. The system shall be capable of surviving the failure of one card and allow storage I/O to continue through the I/O ports upon the surviving disk I/O card.

1.0-190 Shared Disk Cabinets

The solution's data shall be held upon shared disk storage cabinets. Each cabinet shall comprise the following minimum requirements

Full RAID capabilities supporting RAID levels 1, 5 and 6

Hot spotting capability for moving busy disk areas to fastest disk type

Should support Fibre channel connectivity.

Two central processing unit controllers for Redundancy.

Two power supplies for Redundancy

1.0-200 Power Redundancy

Any equipment involved in the Server/storage solution will be equipped with redundant power supplies. The storage or any storage network equipment must have twin power supplies capable of keeping the unit working in the event of the failure of one power supply.

1.0-210 Disk Redundancy

In the event of a disk failure upon the shared Disk storage then the system shall continue without interruption. Faulty disks shall be replaced by simply removing the disk and inserting a new disk of the same size in the slot left vacant by the faulty disk. A replacement disk shall automatically be rebuilt with the data set defined by the mirror or parity set of the RAID grouping into which it has been placed.

1.0-212 SVC

The Storage shall be accessed through SAN Volume controllers (SVCs) to ensure redundancy of storage cabinets. The server hosts shall be configured to see all storage through the SVC appliances which will mirror all data writes to both storage cabinets.

1.0-220 Operating System

The server shall run an operating system AIX 7 and the Oracle database.

1.0-230 Storage I/O

In the event of a failure upon any point in the path of the disk I/O from the host to the Disk storage this failure shall be recovered by switching I/O to a surviving path without interruption to the application or operating system. Any such failure shall also be notified through the Host Operating system error log, email or through an SNMP trap or change in an SNMP mib status.

2.0-100 Containment

The Application within the cluster shall be contained only within the cluster and shall not have any infrastructure software or hardware redundancy feature dependent upon a third party provision outside of the cluster. The cluster shall run as a totally independent module within the ANS CR ATM processing environment any failure of equipment or software outside of the cluster will not cause the failure of the cluster to run its processes.

3.0-100 Operations (Power On node 1)

Upon power on of the computer, Server 1 shall have full access to the data disks through the virtual Storage layer, automatically start up the Oracle database and allow users access to the data. This process should not affect the users already using the database upon Server 2 if running.

3.0-110 Operations (Power on node 2)

Upon power on of the computer, Server 2 shall have full access to the data disks through the virtual Storage layer, automatically start up the Oracle database and allow users access to the data. This process should not affect the users already using the database upon Server 1 if running.

3.0-120 Operations (Power down Node 1)

When powering down Server 1, the operation shall not affect the users connected to Server 2, and Server 2 will be able to accept users from Server 1 to connect to Server 2. All shared storage shall not be affected by the Server being powered down.

3.0-130 Operations (Power down node 2)

When powering down Server 2, the operation shall not affect the users connected to Server 1, and Server 1 will be able to accept users from Server 2 to connect to Server 1. All shared storage shall not be affected by the Server being powered down.

4.0-110 High Availability Dual Controller

The Disk Arrays shall have the high availability feature of dual controllers to allow the continuation of the applications in the event of single controller failure. This feature shall be supported by the intermediary SAN Virtualisation Device, which can recognise a controller failure and activate the alternative path to the storage through the surviving controller.

4.0-115 Dual SAN networks

There shall be 2 SAN Fabrics made up of 2 separate SAN switches to enable redundancy in the SAN storage networking.

4.0-120 High Availability Dual Access

The storage infrastructure shall have dual access to each component within the SAN storage environment, which will allow each SAN switch in the existing infrastructure to have access to all components. This shall allow the application to continue in the event of a failure of a host Fibre port, a SAN switch fibre port, a Storage Fibre port, a fibre cable, completer SAN switch failure or complete SVC failure. This High Availability feature shall be supported by the AIX operating system, which can recognise any of the failures and activate the alternative path to the storage through the surviving controller/SAN switch/port combination.

4.0-130 High Availability Failure of SVC 1

In the event of SVC 1 being lost the solution shall be able to continue to work with the data through SVC 2 which will continue to function without a split brain situation as a result of the 3rd Disk array containing the 3rd voting disk.

4.0-135 High Availability Failure of SVC 2

In the event of SVC 2 being lost the solution shall be able to continue to work with the data through SVC 1 which will continue to function without a split brain situation as a result of the 3rd Disk array containing the 3rd voting disk.

4.0-140 High Availability Failure of Disk Array 1

In the event of Disk array 1 being lost the solution shall continue to work with the data on the Disk array 2 and Oracle RAC will continue to function as the SVCs will transparently access data from the surviving Disk array without a split brain situation as a result of the 3rd Disk array containing the 3rd voting disk.

4.0-150 High Availability Failure of Disk Array 2

In the event of Disk array 2 being lost the solution shall continue to work with the data on the Disk array 1 and Oracle RAC will continue to function as the SVCs will transparently access data from the surviving Disk array without a split brain situation as a result of the 3rd Disk array containing the 3rd voting disk.

4.0-160 High Availability Failure of Disk Array 3

In the event of Disk array 3 being lost the solution shall continue to work. This will be the Voting disk and will not affect Data Availability.

4.0-170 High Availability Failure of Server 1

In the event of Server 1 failing then the solution shall continue to work by Server 1's users being able to login again to Server 2 which will have full access to all 3 disk arrays.

4.0-180 High Availability Failure of Server 2

In the event of Server 2 failing then the solution shall continue to work by Server 2's users being able to login again to Server 1 which will have full access to all 3 disk arrays.

4.0-190 High Availability Failure of rack 1

In the event of Rack 1 being lost the solution shall be able to continue to work with the data accessed via SVC2 on the Disk array 2 (contained in Rack 2) and Oracle RAC will continue to function as a result of the 3rd Disk array containing the 3rd voting disk.

4.0-200 High Availability

In the event of Rack 2 being lost the solution shall be able to continue to work with the data accessed via SVC 1 on the Disk array 1 (contained in Rack 1) and Oracle RAC will continue to function as a result of the 3rd Disk array containing the 3rd voting disk.

4.0-210 High Availability Failure of SAN switch 1

In the event of the loss of a single SAN switch 1 then Server 1 and Server 2 shall continue to run unaffected by this failure by maintaining access to both SVCs and all three disk arrays through the second SAN switch. Both Server1 and Server 2 will achieve this by automatically switching the disk access path to SAN switch 2 by using the operating System MPIO path software. There will be no loss of data or user connectivity to the database.

4.0-220 High Availability Failure of SAN switch 2

In the event of the loss of a single SAN switch 2 then Server 1 and Server 2 shall continue to run unaffected by this failure by maintaining access to both SVCs and all three disk arrays through the first SAN switch. Both Server 1 and Server 2 will achieve this by automatically

switching the disk access path to SAN switch 1 by using the operating System MPIO software. There will be no loss of data or user connectivity to the database.

4.0-230 High Availability Loss of Fibre adapter upon Server 1

In the event of a fibre adapter failure upon Server 1, then Server 1 shall continue to run unaffected by this failure by maintaining access to both SVCs and all three disk arrays though an alternative path to the disk arrays using the Operating System MPIO software. There will be no loss of data or user connectivity to the database.

4.0-240 High Availability Loss of Fibre adapter upon Server 2

In the event of a fibre adapter failure upon Server 2 then Server 2 shall continue to run unaffected by this failure by maintaining access to both SVCs and all three disk arrays though an alternative path to the disk arrays using the Operating System MPIO software. There will be no loss of data or user connectivity to the database.

4.0-250 High Availability Shutdown database upon Server 1

In the event of shutting down the database instance upon Server 1 the user sessions upon server 1 will be disconnected and the users shall be able to create new sessions upon Server 2.

4.0-260 High Availability Shutdown database upon Server 2

In the event of shutting down the database instance upon Server 2 the user sessions upon server 2 will be disconnected and the users shall be able to create new sessions upon Server 1.

5.0-100 Administration of SVCS and Disk Arrays

Each SVC and Disk Array shall have a web-based administration through which the system can be administered and monitored.

5.0-110 Administration Command line interface

Each SVC and Disk Array shall have a facility to monitor the system through scripted commands and through automatically generated mails directed to an SMTP gateway.

5.0-120 Administration Ethernet Admin Ports

Each Disk Array shall have dual Ethernet administration ports for redundancy.

5.0-130 Database Recovery

The database service shall function in a clustered environment allowing automatic recovery and availability of database service in the event of a failure of any part of the database service including the availability of IP addresses.

5.0-140 Monitoring, Control and Backup

The servers shall have Monitoring, Control and Backup facilities.

5.0-150 Database ORACLE

The servers shall run Oracle 19 database Enterprise Edition and Oracle 12 database Real Application Clusters which will support all application.

5.3 Requirements for ATRAK workstation and RCMS target technology

The requirements for the hardware are:

WKSTN.010 Fanless

The system shall make a minimum of sound by being fan-less. The heat shall be dissipated with heat sink technology. WKSTN.020 SSD

The system shall be designed for durability with a minimum size of 400GB SSD devices for long term storage to avoid high energy use and be reliable.

WKSTN.030 CPU

Due to the likely scale of demands of the application upon the processor the CPU shall need to have reasonably high CPU specifications. The CPU shall have at least a 6-core processor.

WKSTN.040 Size

Shall be within the dimensions of 250mm (W) x 240mm (D) x 100mm (H) and be lower in weight than 4.8Kg.

WKSTN.050 Durability

The system shall have operating temperatures within the range of 0°C->+50°C and MTBF of over 90,000 hours

WKSTN.060 Network

The system shall have least two network ports for Network redundancy.

WKSTN.070 Mountable

The system shall be mountable upon a vertical panel designated in the Controllers Desk. (See WKSTN.040 for limitations of weight and size for fitting this mount).

WKSTN.080 Operating System

The system shall support the Centos release 7 64-bit kernel or greater operating system.

WKSTN.090 Mouse and Keyboard Sharing

The system shall be capable of sharing the mouse and keyboard between the IDP PC and IDP AIM consoles in the same position. This will require the ability to integrate with the low-level software tool ATRAK Synergy.

WKSTN.100 Memory

The system shall have a 16GB of memory or more to allow for future scaling of application.

WKSTN.110 RAID

The system shall have 2 disks in RAID1 for data protection.

5.4 Requirements for ATRAK Bypass rack target technology

BYP_WS_01 - Redundant Disks

System shall have RAID controller or controllers supporting RAID 1 mirroring for a minimum of 2 disks or independent SAS controllers allowing logical volume mirroring at the operating system level. If one disk fails then the system will not be impacted and the disk can be replaced simply by removing the defective disk and inserting a disk with no less a capacity of the failed disk.

BYP_WS_02 - Disk Capacity

System server shall have at least 2 internal disks for Operating system with capacity of at least 480GB per disk.

BYP_WS_03 - Ethernet Redundancy

System shall have on-board Ethernet ports or sufficient PCIe slots to allow Multi-port Gigabit Ethernet cards which can be bound together to give redundancy for IP network connectivity for one or two networks.

BYP_WS_04 - Power Redundancy

System shall have redundant Power supplies to prevent system failure in case of loss of single source of power.

BYP_WS_05 - Memory

System shall be equipped with at least 32GB of memory to support the Operating system and application allowing for future growth of the usage of the Bypass service.

BYP_WS_06 - Processor

System shall be equipped with a processor with at least 8 cores. This will be sufficient to run the ATRAK applications allowing for the growth in demands of future requirements.

BYP_WS_07 - Operating System

The Workstation shall be capable of running the Centos 7 or higher Operating System.

BYP_WS_08 - Graphics Adapter

The Graphics adapter shall support DisplayPort 1.2 connection to the Bypass graphical displays.

BYP_WS_09 - Resolution

The Workstation Graphics adapter shall support graphics resolution across the DisplayPort 1.2 connectors upto 3840 × 2160 @ 60Hz.

BYP_WS_10 - Extender

The solution shall provide an extended KVM facility to allow the Workstation processing unit to be housed in the CST room whilst the Keyboard, Video and Mouse will be housed in the Controller's desk.

BYP_WS_11 - Extender DP 1.2

The Extender shall have DisplayPort 1.2 cable connectors to allow the extension signals from the Bypass Workstation to the monitor.

BYP_WS_12 - Extender Resolution

The Extender shall support graphics resolution across the DisplayPort 1.2 connectors upto 3840 × 2160 @ 60Hz.

BYP_WS_13 - Graphics Monitor

The system shall be equipped with 2x supplementary 27inch monitor resolution 2560x1440.

BYP_WS_14 - Switch

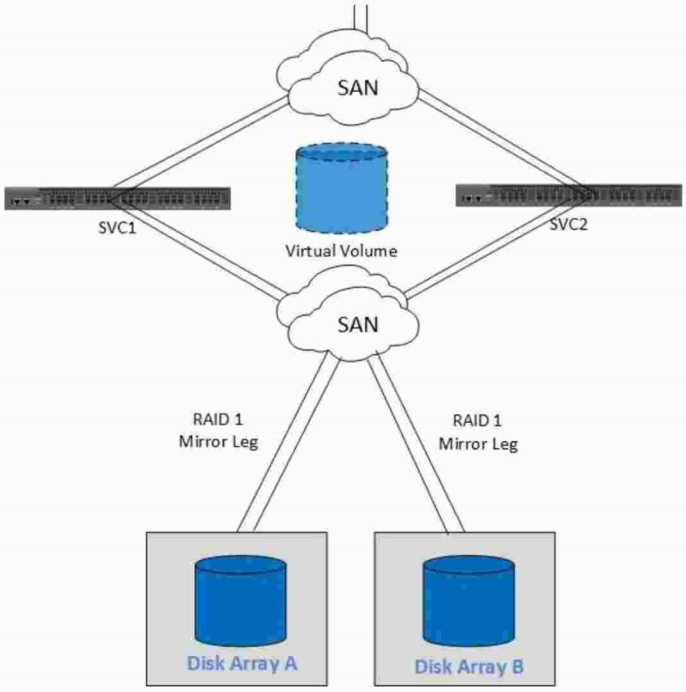
System shall be equipped with a ATRAK Remote Video Switch WALDO/Bypass screen via 4K ATC display unit

6 Proposed Solution

6.1 ATRAK Waldo/ASTA2 Servers

ATRAK S914

ATRAK S914



6.1.1 ATRAK S914 Configuration

Below is the description of the H/W that make up the ATRAK proposal for supplying the upgrade of ATRAK WALDO and IDP Servers.

The proposed configuration (and IDP) of each S914 is listed in the table below.

Amount	Description
1	ATRAK S914
2	6-CORE 3.89 GHZ POWER9 PROCESSOR CARD
16	16 GB DDR3 MEMORY (Total of 256GB)
4	300GB 15K RPM SAS SFF-3 4K BLOCK – 4096 (Internal Disk)
4	PCIE3 LP 16GB 2-PORT FIBRE CHANNEL ADAPT
4	PCIE2 LP 4-PORT 1GBE ADAPTER
2	AC POWER SUPPLY - 1400W FOR SYSTEM UNIT
1	SPLIT #EJ0T TO 6+6 SFF-3 BAYS: ADD 2ND SAS Adapter (This allows Internal disks to be allocated across two separate SAS adapters)

6.1.2 Description of the SVC solution.

The ATRAK SAN Volume Controller solution is a storage virtualization appliance internally developed for the purpose of heterogeneous storage virtualization. The below model proposed is the which will be configured in a 2 node cluster (see below)

Figure 1 Front View of the two node ATRAK SVC Cluster

By implementing a clustered architecture based on industry-standard x86 servers, the SVC platform is the best performing SAN storage virtualization in industry-standard benchmarks. SVC Data Engines (that is, controllers) are deployed in two-node groups and feature FC, FCoE, and iSCSI host connectivity.

Each SVC Engine includes

- 2U, 19-inch rack mount enclosure
- Two Intel Xeon with 256 GB memory
- Two 4 port 16 GB CARD
- One 1 Gb Ethernet port for service technician use
- 240 GB M.2 BOOT DRIVE PAIR
- Two integrated battery units
- Two ac power supplies and cooling units
- Rack mount hardware kit

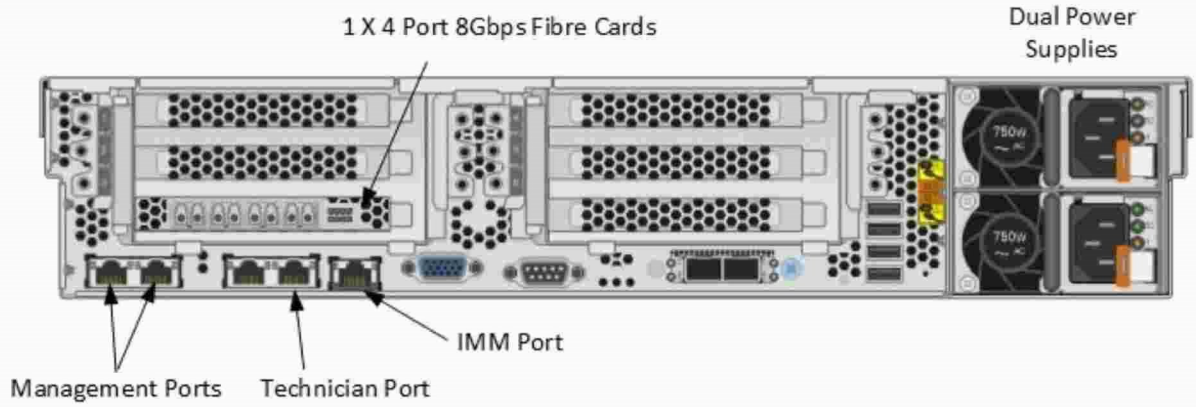
The SVC platform implements an easy-to-use management interface that streamlines most configuration and management processes.

The product's storage software portfolio offers a number of options that integrate with the SVC platform, including Spectrum Control and Spectrum Protect. These products provide capable and comprehensive toolsets for administrators who require advanced storage management and data.

The SVC platform offers a large number of features, such as local copy services, remote replication, thin provisioning, in-line compression, automated tiering, and QoS management. These features allow users to improve storage efficiency, add advanced functionality to commodity storage, and control performance in multitenant environments.

The administration interface allows all provisioning, tiering and replication over the SVC to be managed by one management interface.

Figure 2 Rear View of ATRAK SVC with 1 X 4 port Fibre cards

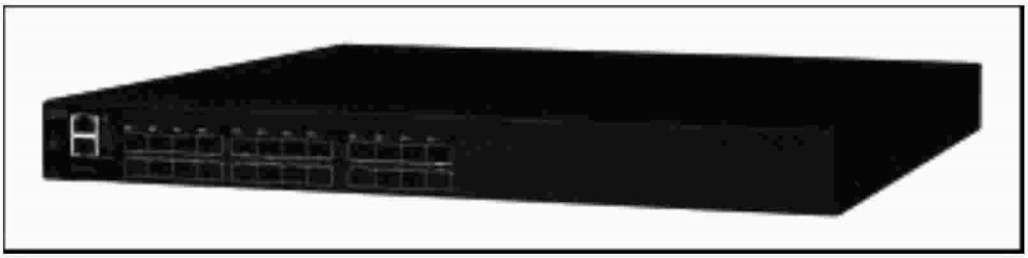


The above figure shows a representation of the configuration which will be used in the SVC cluster.

6.1.3 SAN switches

Two 24 port SAN switches will be provided with the solution along with the S914 servers and V5030 storage. The SAN infrastructure will be upgraded to include four ATRAK24B SAN switches, each configured with minimum 12 port configurations to manage the SVC to storage traffic. These switches will only be connected to the SVCs and the Storage. No hosts will have direct connections to these switches.

Figure 3 System Network ATRAK24B-6 switch



The ATRAK24B-6 with Gen 6 Fibre Channel technology and Fabric Vision technology is designed to provide outstanding price and performance value, combining flexibility, simplicity, and enterprise-class functionality to unleash the full potential of high-density server virtualization, cloud architectures, and next-generation storage. The ATRAK24B-6 entry-level switch is configurable in 12 or 24 ports and supports 2, 4, 8, or 16 Gbps speeds in an efficiently designed 1U form factor. It includes a single power supply with integrated fans.

The switches are proposed with dual Power supplies to fit with ANS CR's redundancy policy on all Enterprise Server equipment. The SAN switches will be configured with 16Gbps speed ports.

6.1.4 ATRAK V5030s

The solution requires three ATRAK V5030 disk storage units. Two ATRAK V5030s will be configured like a mirrors for SVC cluster. A third ATRAK V5030 will do a role of voting disk. Each V5030 comes with SAN fibre ports 4 on each controller and two management network ports.

Figure 4 V5030 Front and Rear Views

Below are some of the specifications for this V5030 storage solution. Details of the model to be supplied are included in the hardware schedule below

6.2 ATRAK RGA TWR IDP Servers

6.2.1 ATRAK SR650

In the table below is configuration of pair of RGA servers which is running in parallel usage.

Amount	Description
1	ATRAK SR650
2	6-CORE 3.89 GHZ POWER8 PROCESSOR CARD
4	16 GB DDR3 MEMORY (Total of 64GB)
2	300GB 15K RPM SAS SFF-3 4K BLOCK – 4096 (Internal Disk)
2	PCIE2 LP 4-PORT 1GBE ADAPTER
2	AC POWER SUPPLY - 1400W FOR SYSTEM UNIT

6.2.2 Physical specification

19-inch rackmount hardware

Width: 445 mm (17.5 in.)

Depth: 764 mm (30.1 in.)

Height: 87 mm (3.4 in.)

Weight: Minimum configuration: 19 kg (41.9 lb), maximum: 32 kg (70.5 lb)

6.3 ATRAK Workstation and RCMS

Below is the description of the H/W, S/W and Services that make up the ATRAK proposal for supplying the upgrade to the ATRAK Workstations.

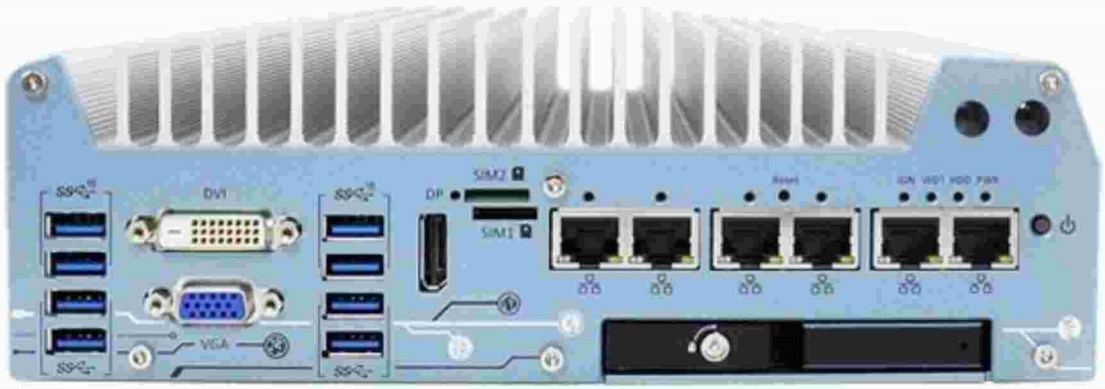
ATRAK propose for the upgrade computer to be the ATRAK 7006LP which will reside in the Controller's desk. This computer is a robust system which is built on Fan less technology to deliver noiseless operations and be capable of working in extremes of temperature. The system have possibility of delivering DP connected resolutions of up to 3840 x 2160 @60Hz. It also has 6 integrated Ethernet ports capable of running 1Gbps which satisfies the system requirement for network redundancy.

The system runs Centos 7 and can support the ATRAK IDP, AIM SIMU and RCMS application requirements.

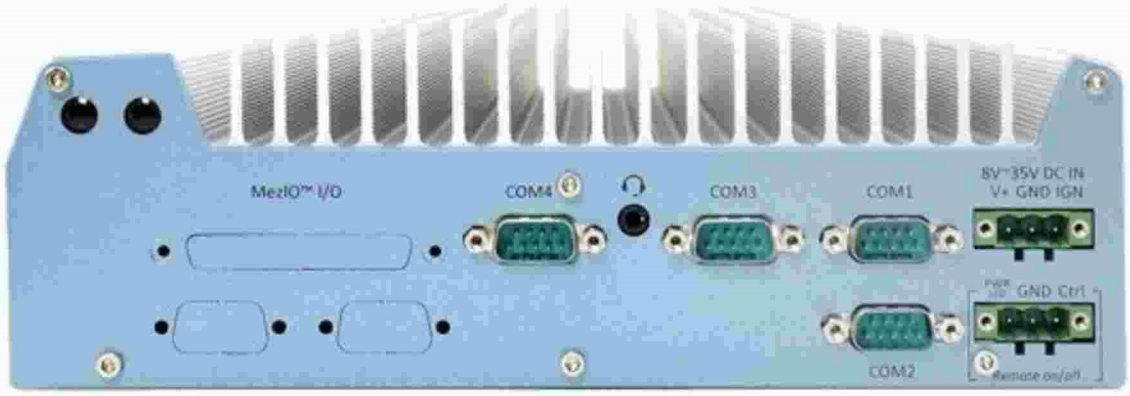
ATRAK propose to supply the following schedule of Hardware, Software and services to supply the requirements for the upgrade to the Electronic Strips Infrastructure.

6.3.1 ATRAK 7006LP

Bellow are photos of Atrak 7006 LP workstation



ATRAK 7006LP front view



ATRAK 7006LP rear view

6.3.2 ATRAK 7006LP Configuration

Every ATRAK 7006LP has a HW configuration with the following parameters:

Component	Qty	Description
Chassis	1x	Fanless Rugged Machine Vision Computer with Socket PGA988 G1, DDR3, 5GbE, 4USB3.0, 4USB2.0, 2COM, 8DIO, 1 x 2.5" SATA Bay, 8V to 25V DC
Processor	1x	Intel Core i7 8700T (Coffee Lake), 3,2 GHz, Six Core, 14nm, 12M Cache
Memory	2x	16GB:RAM SODIMM DDR4 16GB
HDD	1x 1x	512 GB internal, 2.5" SSD, SATA III 512 GB front-accessible, hot-swappable, 2.5" SSD, SATA III
Ethernet	6x	1Gbps on board port
Power	1x	100-240V AC to 19V DC (120W) Power Adapter
Video port	1x 1x 1x	VGA connector, supporting 1920 x 1200 resolution DVI-D connector, supporting 1920 x 1200 resolution DisplayPort connector, supporting 4096 x 2304 resolution
Graphics	1x	Integrated Intel® UHD Graphics 630
USB	4x 4x	USB 3.1 Gen2 (10 Gbps) ports USB 3.1 Gen1 (5 Gbps) ports
Dimension		240 mm (W) x 225 mm (D) x 79 mm (H)
Weight		3,1 kg
Mounting		Wall-mounting (standard) or DIN-Rail mounting (optional)
Operating temperature		-25°C ~ 70°C

6.3.3 Operating System

The ATRAK applications run upon the Linux operating system. The Linux being used for this implementation is Centos as detailed below. The application has been tested to run upon this upgraded version of the Operating system which is a derivative of the RedHat Linux Operating system which is the basis for many applications throughout the ATC industry.

Operating system	Release	Version
Centos	7	64 bit

6.3.4 Resolution

Project demand 4k resolution monitors, which can be connected to Atrak 7006LP by Display port connector – DP 1.2 cable need to be used and than system support resolution up to 4096 x 2304. VGA and DVI-D connectors support resolution only up to 1920 x 1200 resolution.

6.3.5 Ethernet Configuration

For redundancy the ATRAK 7006LP makes use of the Linux bonding for the Ethernet ports. This allows the Ethernet ports to be grouped together to act as one highly available Ethernet port in a device known as a bond device. The bond device functions as a normal Linux Ethernet device. It allows the device to handle the failure of one Ethernet port by using the surviving ports in the bond to maintain the connection to the network.

Each ATRAK 7006LP is connected to the ANS network by one bonded device. These ports are joined together in the Linux bonding device bond0.

6.3.6 RAID

ATRAK 7006LP is using 2 SSD disks configured in RAID1. Front accessible disk is hot swappable. In case that one of disks will fail, system is able to operate without interruption, so there would be time to plan disk replacement.

6.3.7 Software

For the workstations ATRAK will also be supplying the ATRAK Synergy software which allows the ATRAK-AIM, ATRAK-IDP/PC and IDP DPP workstations to cooperatively use the same Keyboard, Video and Mouse. ATRAK Synergy software is also able to share same interoperability with Thales TopSky workstation solution.

This software replaces the older interoperability software and will be rolled out at the same time as the installation and implantation of this IDP DPP upgrade.

The workstations will be installed with the ATRAK-IDP and ATRAK-AIM application software.

6.4 Atrak Bypass rack Workstation

6.4.1 ATRAK SR650

6.4.2 Extender

For this proposal technology are used extenders GD DP 1.2 Vision Fiber AR

The KVM Extender System DP1.2 Vision extends the following signals:
Keyboard/Mouse (USB and PS/2)
DisplayPort. 1.2a with pixel rates between25 MPixel/s and 600 MPixel/s (e.g. 4096 x 2160 @ 60Hz or 3840 x 2160 @60Hz)
Pixel encoding RGB 4:4:4 with 24bpp / 8bpc
Audio, analogue, bidirectional, stereo
RS232 transparent

For rack installation of extender it is possible to deliver extender with rack-mount kit.