Saakshaat Telepresence Service

Hosted Cloud based Telepresence & Video as a Service
Managed Video as a Service

Service Description Document V1.1

RailTel Corporation of India Ltd.
(A Miniratna Category - I Enterprise)

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1   PREFACE – RAILTEL

RailTel Corporation of India Limited (RailTel) an ISO-9001:2000 organization is a Government of India undertaking under the Ministry of Railways. The Corporation was formed in Sept 2000 with the objectives to create nationwide Broadband Telecom and Multimedia Network in all parts of the country, to modernize Train Control Operation and Safety System of Indian Railways and to significantly contribute to realization of goals and objective of national telecom policy 1999. RailTel is a wholly owned subsidiary of Indian Railways.

RailTel is building state of the art multimedia telecom network using SDH/DWDM based transmission systems and high end MPLS-IP routers. RailTel has extensive expertise in building telecom networks. Moreover, RailTel draws its manpower from signal and telecom branch of Indian Railway which has been in the business of construction, operation and maintenance of telecom systems for more than 50 years.

RailTel has created countrywide state of the art SDH/DWDM backbone optical transport network using latest technology. More than 400 cities covering over 37,000 RKMs across the country are connected on the network with multiple STM-16 (n x 2.5 Gbps) connectivity. RailTel has also implemented ultra-high capacity DWDM network over 10,000 RKM to provide 400 Gbps which is further upgradable to 800 bps in future. The PAN India DWDM network will be made operational by the end of 2012.
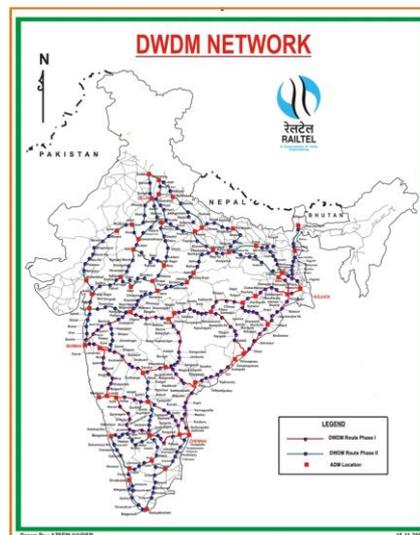

Figure 1: RailTel Network

For Enlarged Image Click on http://www.railtelindia.com/editor/imgUpload/dDWDM.gif

RailTel's backbone Transport Network has been configured in multiple 'Self-Healing' Ring architectures which provide for redundancy by automatically redirecting and switching traffic from failed/ degraded routes for an uninterrupted service ensuring maximum up time and service reliability. The network supports multiple ring protection schemes. The network has been designed in such a way that full redundancy is available for bandwidth between any two points.

The whole network is managed by centralized network management/ operation system (NMS) centrally located at New Delhi with back up facilities at Secunderabad / Kolkata / Mumbai. RailTel has got unique advantage to offer the best quality service (QOS) from a single unified network with PAN India presence. This state of art network enables point and click provisioning of the bandwidth and other services from anywhere to anywhere in the country. It enables provisioning of traffic in any granularity from 2 MBPS to multiple of Gbps (n x Gbps) from its country wide strong backbone network.

1.1. IP MPLS NETWORKS

Figure 2: IP MPLS Networks

For enlarged image click on the link http://www.railtelindia.com/editor/imgUpload/dMPLS_Cut.gif

One of the objectives of formation of RailTel was to spread telecom revolution in the remote and backward areas of the country by building state of the art multimedia network. In this process, RailTel has implemented country wide MPLS-IP backbone network to provide whole range of VPN & Internet services. The network has been built using high end routers of Juniper network. The network support services like Layer 3 and Layer 2 VPN services, broadband internet access, multicast services etc. The MPLS network has POPs at 40 cities across the country and is in process of being extended to other important cities/towns also. The MPLSNOC is also equipped with Dorado Redcell and Infovista for network provisioning and performance management.

1.2. IP MPLSNOC

The complete MPLS network is managed by centralized network management system (NMS) located at New Delhi with back up at Secunderabad. For the SDH/DWDM network, RailTel has NOC situated at all regional HQs which maintain the network under their respective territory. However, each of the NOC is provided with back up on the other regional NOCs. RailTel has got the unique advantage to meet the quality bandwidth and service requirements from single network. The state of art network enables point and click provisioning of the bandwidth from anywhere to anywhere in the country. It enables provisioning of traffic of any granularity with the extensive reach from any part of the country to any other part.

RailTel has an excellent team of highly qualified engineers working to support our customers on 24 x 7 x 365 basis. Proactive maintenance and monitoring is done regularly by engineers thus ensuring better service support. Our state of the art NOC is capable to generate online reports for monitoring of SLA parameters on a periodic basis.

1.3. VISION OF RAILTEL TP SERVICES

The Indian government's aim is that, by 2020, India will be among the world's leading digital economies driven by the high penetration of broadband which shall accelerate the national GDP growth, drive new innovations and inventions through increased collaboration and most importantly reduce the carbon emission. As per some research predictions by 2020 the Crude Oil shall touch as high as 500 US Dollars which shall have profound effect on   India's energy consumption and domestic economy.

The digital economy is essential to India's innovation productivity, global competitiveness and improved social wellbeing. Greater digital engagement can boost social, economic and environmental productivity. It can collapse the time space paradigm and accelerate service delivery for regional and rural Indians. It can improve educational and health outcomes allow for better management of the country's precious resources, promote social inclusion and facilitate more environmentally sustainable management of the built and natural environment. To ensure that these benefits are properly realized, it is important to ensure that Indian households and businesses understand how to engage safely and securely online.

The government's commitment to build the enabling infrastructure for the digital economy, in particular the commitment to build the RAILTEL, will allow India to participate in and enjoy the benefits of the global digital economy. The RAILTEL will offer ubiquitous coverage which will allow all Indian households and businesses to participate in the digital economy regardless of where they live. It will support high speed symmetrical services giving more people access to new tools to manage their business or receive education services. It will also offer greater stability and reliability of broadband services to support a growing number of critical applications, such as health.

India presently lags behind the world's leading digital economies. The OECD reports that, as of June 2010, India was ranked 18th amongst member states for broadband penetration. The World Economic Forum ranked India 17th in its 2010-2011 Network Readiness Index, behind such competitor economies as the US, UK, Singapore, Hong Kong, Korea, and Taiwan. The Network Readiness Index measures how economies leverage information and communications technology advances for increased growth and development.

By investing in the RAILTEL, the government is putting in place the essential underlying infrastructure, which will form the platform for India's future engagement in the digital economy. Find out more about the key characteristics of the RAILTEL that will support India becoming a leading global digital economy by 2020.

India will have successfully made this transition when the efficient use of digital technologies has become so interwoven with citizens' business, professional and personal lives, that they move seamlessly between the digital and physical world as appropriate. A recent report by the Boston Consulting Group on the impact of the internet on the UK economy noted:

"While it may once have made sense to ask about the size of the "electricity economy", that question is now moot. Electricity is fully woven into the fabric of the developed economies."

To achieve this vision, the government has released a National Digital Economy Strategy. The Strategy outlines eight Digital Economy Goals, the Way Forward, Government Initiatives and Industry Initiatives.

1.4.   MISSION OF RAILTEL TP SERVICES

The Indian Government's aim is that, by 2020 India will be among the world's leading   Digital economies.

Ensuring that India becomes a leading digital economy will contribute to India's productivity, maintain our global competitiveness and improve our social wellbeing. The government's Commitment to build the enabling infrastructure for the digital economy, along with the National Broadband Network (NBN), NKN, is a key step towards this vision.

To measure our progress in realizing this vision, the government has set eight 'Digital Economy Mission that focus on the areas of:

1) Drive Organizational Productivity across all sector and all industrial clusters

2) Facilitate National Objectives of Education through Digital Platform

3) Facilitate National Objectives of Rural HealthCare

4) Digital Engagement by Indian businesses and not-for-profit organisations

5) Intelligent Management of our environment and infrastructure

6) Facilitate creation of additional 100 Million Jobs by 2020

7) Assist in Improving online government service delivery and engagement

8) Greater digital engagement in regional India.

9) Improve the % of Digital Economy Participation

The comprehensive transition of India's economy and society to a digital economy is appropriately a market-led phenomenon. Maximizing the benefit of the digital economy requires action by all levels of governments, industry and the community as a whole. The government invites industry, state and territory governments and local councils to join with it to contribute to the vision of India becoming a leading digital economy by 2020.

2 VIDEO/TELEPRESENCE CONFERENCING SERVICES - AN INTRODUCTION

Hosted multitenant managed video conferencing services give organizations the benefits of video conferencing technology, without the major investment in hardware, infrastructure, and network that is often required for larger scale deployments. Railtel telepresence & video conferencing as a service "Saakshaat" delivers the value of high-quality video conferencing meetings without the up-front costs of equipment and staff that is usually needed to successfully set up and manage video calls. It allows different user groups to collaborate together thru room based, desktop based or even mobile based video collaboration in a effective manner and make video collaboration easily accessible to anyone, anywhere

The following are some of the benefits organizations/Public sector undertakings experience from a Railtel video conferencing service "Saakshaat":

Investment: Traditional video conferencing systems require a significant capital investment in equipment, especially if the system is expected to scale. In addition to the telepresence and video conferencing units that are required at each user location, numerous infrastructure products that allow these systems to communicate are also required. A dedicated, highly secure network with a large amount of bandwidth is needed to run calls smoothly. Many small to medium sized businesses actually put off investing in video because the costs of running it are just too high. A Saakshaat telepresence service removes the costs associated with owning the technology needed to run the video calls, and can assist in scheduling, monitoring, and managing each video meeting.

Expertise: Many organizations with video conferencing systems do not have the in-house resources necessary to manage their equipment themselves; they lack the dedicated IT personnel or technical know-how to run their own video calls (partly because their IT staff is busy managing other important technical issues!). Saakshaat telepresence services provide companies the benefits of a highly trained staff and extensive technical expertise – without the need to hire or train anyone.

Process: One of the keys to successful video conferencing is having a single process in place to manage the meetings. This sounds logical but it can be surprising how many organizations do not outline the steps employees need to follow to schedule calls, leaving room for error. Saakshaat telepresence service provides a single process for managing calls; all managed video calls are connected the same way each time, regardless of the type of meeting being held (point-to-point call or a multi-point call with more than two sites) and VNOC provides extensive support and single window to manage the Video Call Process for multipoint video calls if Video bridge services being subscribed.

Reliability: Video calls must run smoothly every time for meeting participants to continue using the technology. When video calls run into too many glitches, users will simply abandon its use in place of a less effective but more reliable method, and a company's return on investment (ROI) will be shot. A managed service removes the worry over things going wrong – instead the service proactively manages and monitors each call and all equipment involved to make sure that the user experience is reliable. Bottom line- reliable video meetings result in a better ROI.

Interoperability: Video conferencing systems manufactured by different companies often use varying protocols for communication. Video conferencing services offer transcoding – a method of translating these different video conferencing protocols and creating a uniform format that allows the systems to speak to one another. Transcoding is a complex process, but can be carried out seamlessly behind the scenes by a managed service; companies that take the task of transcoding on themselves must be well versed in the many video conferencing protocols on the market today.

Security: Security is a concern for many organizations that use a hosted video conferencing services-based managed service. A high quality service will address this issue by following steps that ensure protected communication and data. Encryption options are offered for each end point, and meetings will not be recorded or captured via desktop-share stream. Security is maintained at many levels, including user accounts, meetings, applications, and ports. There are options to publish and lock meetings, drop participants, and every meeting is assigned a user-defined passcode.

The Saakshaat telepresence service in the multitenant hosted model offers exciting opportunities for business of all sizes to access video technology in a way that is affordable, easy to operate, and not dependent on in-house IT resources to manage.

3 SAAKSHAAT TELEPRESENCE SERVICES - SEAMLESS VIDEO/ TELEPRESENCE AS A SERVICES

Saakshaat Telepresence is an Enterprise Class High Definition (HD), multi-point, secured & managed video conferencing service that enables organizations to communicate/ collaborates with different user groups internally or externally and allows to enhance employee productivity and cut travel expenditure more effectively without the need of a face to face meeting.

It is an end-to-end, secure, hosted multitenant video service that allows connecting multiple video systems into a single videoconference without the need to purchase and manage expensive video bridging and associated infrastructure equipment's and without the need to invest in huge IT team to managed entire video conferencing ecosystem.

Depending on the need and used case, you have numerous options for the video collaboration solution you choose. There is a system for every workspace from boardrooms to desktops, Laptops supporting a virtual workforce, lets small and mid-size organizations compete with larger companies for the best talent, regardless of where it's located; save money on facilities and related costs; and maintain a "green" footprint thanks to reduced commuting times and energy consumption.

In brief Saakshaat TP Service is an end-to-end, high-definition videoconferencing service that gives PSU Officers a virtual, face-to-face meeting experience. PSU can make videoconferencing more accessible to a larger community of people in the

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organization since Saakshaat TP Service encompasses a wide range of video collaboration environments from immersive, multi-purpose, to personal. It combines high-definition video and spatial audio so officials can collaborate with people working at different locations across the PSU as if they were in the same room. Multi-purpose room arrangements adapt to a wide variety of room configurations and environments while still delivering an in-person type meeting experience. The smaller desktop or portable devices can also provide for mobility, which could be of great use in disaster and project management.

3.1   Saakshaat Telepresence – Service Components

3.1.1   Video Exchange/ Conferencing Services

A high-performance, scalable, secured and fully managed video conferencing solution can greatly enhance your communication network, and drive increased productivity and greater visibility across all parts of your public sector transformation and enterprise. Developing and deploying this kind of solution, however, can absorb significant resources and take you away from your core business. To establish a right video conferencing network that enhances communications, & collaboration, you need to partner with a company that can deliver an end-to-end solution, understand public sector and government functioning and deliver SLA driven managed services in order to deliver fast pace, performance driven service. At Railtel Saakshaat Video Conferencing exactly serve the needs to govt. public sector and enterprises to leverage complete end to end solution and that too SLA driven managed services framework.

Saakshaat Video Conferencing's solutions are built around industry-leading hardware and software, and backed by our proven services organization that can design and support your entire conferencing network beyond the time that it goes live. From choosing the right equipment, to scheduling conferences and maintaining and upgrading technology, we work with you to manage your connections and provide the highest level of video conferencing quality. The entire video conferencing solution component comes as bundled, subscription based, SLA driven service offering.

With Every end point subscription, Video Conferencing Subscription to be chosen by public sector/ government departments or enterprises in order to avail seamless point to point and multipoint video conferencing service.

3.1.2   Managed Video End Points

A high performance video communication service needs right set of Video End point installed at each of the user locations, End point selection is based on optimum need of the user group and several choices available at Saakshaat Telepresence Services portfolio.

A) Integrated Codec based Video End points deliver great quality at optimum cost, several choices are available from Small room to medium sized room to large audio visual room setup. Based on the need and room size, Railtel can recommend the right set of end points with optimum cameras, audio, speaker points and overall end point solution.
B) Immersive Video Experience – Full face-to-face meeting kind of experience at highest level of quality and unmatched service performance.
C) Desktop based video client for mobile users to join the video conferencing at HD resolution

Just getting end point procurement will not deliver end to end service, therefore Saakshaat Telepresence provide fully managed video end points with entire procurement, installation and post maintenance support along with proactive monitoring and management and bundled with Video conferencing subscription in order to have end to end service offering to provide seamless experience. Some of the end point description listed below:

3.1.2.1   Saakshaat 600

TP Unit 1 (Single Camera TP System): Telepresence / Video Conferencing Room system providing 1080p 30fps video experience. The price per month includes 2 Mbps 1:1 bandwidth, TP unit and help desk support. Unit comes along with a codec & one 12x optical zoom camera. Capable of connecting 2 HDMI connected video displays & taking inputs from 1 nos. HDMI (Camera) & 1 nos. DVI (PC/ laptop). Unit is capable of providing advance screen layouts & intelligent video management. Unit is capable of taking 4 audio inputs (2 Microphones viz. 4 pin mini jacks, 1 mini jack for live-in stereo & 1 audio in from camera (HDMI)). The unit can provide 2 audio outputs (1 mini jack for line -out stereo & 1 HDMI digital main audio).

The unit come with auto sensing power supply capable of working from 100 -240 V AC 50/60 Hz with max. 40 watts for codec & main camera.

The unit has an option to add on local multi party (1+3) connectivity with TP Local MCU and additional bandwidth.

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3.1.2.2   Saakshaat 610

TP Unit 2 (upgradeable two 2 cameras): Telepresence / Video Conferencing Room system providing 1080p 60fps video experience. The price per month includes 4 Mbps 1:1 bandwidth, TP unit and help desk support. Unit comes along with a codec & one 12x optical zoom PTZ camera. Additional camera can be provided on additional charges.

Capable of 2 HD connected video displays using 1 HDMI & 1 DVI & taking inputs from 2 nos. HDMI (Camera) & 1 nos. DVI (PC/ Laptop) and one S- Video composite input. Unit is capable of providing advance screen layouts & intelligent video management.

Unit is capable of taking 5 audio inputs & can provide 3 audio outputs. The unit come with auto sensing power supply capable of working from 100 -240 V AC 50/60 Hz with max. 40 watts for codec & main camera. The unit has an option to add on local multi party 1+3 connectivity with Local TP MCU.

3.1.2.3   Saakshaat 620

TP Unit 3 (2 cameras and 8 mics. by default and expandable to max. 12 nos. of cameras and max. 14 nos. audio inputs): Telepresence / Video Conferencing Room system providing 1080p 60fps video experience typically suitable for auditoriums. The price per month includes 6 Mbps 1:1 bandwidth, TP unit and help desk support.

Capable of connecting 2 HDMI connected video displays & taking inputs from 1 nos. HDMI (Laptop) & 1 nos. DVI (Camera). Unit is capable of providing advance screen layouts & intelligent video management. Unit comes along with a codec & 12x optical zoom camera.

Unit is capable of taking 4 audio inputs (2 Microphones, 4 pin mini jacks, 1 mini jack for live-in stereo & 1 audio in from camera (HDMI). The unit can provide 2 audio outputs (1 mini jack for line -out stereo & 1 HDMI digital main audio).

The unit come with auto sensing power supply capable of working from 100 -240 V AC 50/60 Hz with max. 40 watts for codec & main camera.

The unit has an option to add on local multi party connectivity with Local TP Unit MCU.

3.1.2.4   Desktop Clients

Desktop based video software available to be subscribed to have 720p/30fps video quality resolutions.

3.1.3   Customized Video End Points

Beyond few of the standardized end point, Saakshaat telepresence has the option to choose wide variety of other end points, which can be subscribed, and customized solution can be devised to have fully managed video conferencing environment with end point, to proactive management to video conferencing subscription service.

3.1.4   Value Added Services

3.1.4.1   Recording & Storage Services

As part of value added services, Saakshaat Telepresence offer Recording and Storage services, this service can be subscribed by customers as additional service and full HD Recording for the live TP/ VC call connected through video bridge can recorded and store.

3.1.4.2   Enterprise Video Portal

Saakshaat telepresence services includes Enterprise Video Portal as VAS service subscription, and once subscribe, recorded sessions can be accessed (viewed, downloaded) through a secure Enterprise Portal Library.

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3.1.4.3   Live Streaming

Saakshaat telepresence service includes Live Streaming Services as VAS service subscription, and once subscribes; Live TP/ Video call can be recorded and stream live over web too. This service subscription can be availed along with Recording Services.

3.1.4.4   Interoperable Video Exchange Services for existing end points

Saakshaat telepresence service has option of standalone video exchange service subscription for any existing end point (Subject to Railtel certified end points). Saakshaat offer this service as few variant and can be discussed and provide as solution to the customer. Choice option is available in form of Virtual Meeting Room, Virtual Video Exchange Ports or based on each end point based conferencing subscription or across different users. Based on requirement inputs, Railtel can recommend the right service subscription options.

3.2   Key highlights of Saakshaat Telepresence/Video Conferencing Service

- **Complete communication solution**
  - o   Fully integrated multipoint voice, data and video conferencing solution
  - o   Allows client to conduct a point-to-point or multi-point video conferencing
- **High-definition (HD) Display**
  - o   High Definition Collaboration with 1080p.
  - o   Display refresh rate of 30 frames per second (fps) and future ready extensibility up to 60fps.
  - o   High Definition Multisite with individual Transcoding feature.
  - o   Excellent eye contact and ideal screen height for natural communication
- **Audio features**
  - o   Full Duplex Audio with High Quality Stereo Sound
  - o   Display images synchronized with the Audio experience including microphone, speakers etc.
  - o   Microphone inputs with separate echo cancellers.
  - o   Automatic Gain Control (AGC) and Automatic Noise Reduction
  - o   Active lip synchronization
- **Program Sharing**
  - o   One touch to share a presentation or other materials
  - o   Interactive Collaboration allows viewing and working simultaneously on the same document.
- **Recording and streaming video meeting**
  - o   Reach hundreds or thousands of viewers with external streaming services.
  - o   Stream live or play back the content on demand to any PC or videoconferencing endpoint
  - o   Enables Recording of the video meeting, such as companywide announcements, trainings, and meetings to be shown to a wide audience at a time most convenient for viewers
  - o   Playback from built in streaming server or to VC endpoint.
  - o   Support for Windows media, Real Media player, Apple iPod files etc
- **Robust Architecture & Control**

- o Robust distributed server architecture routes real-time communication streams in a highly scalable, fault tolerant, bandwidth-efficient manner.
- o Special techniques and algorithms for optimizing bandwidth usage and avoiding network congestion
- o Administrative control over video bandwidth amount, and over which hosts are allowed to initiate video in their meetings.

- **Simple, Graphical User Interface (GUI)**
  - o Intuitive user interface, Drag and drop to create your own view on collaboration screens.
  - o Customizable welcome screen and company logo.
  - o Easy access to directories, call control or concierge services.
  - o Clear menu prompts and phone books.
  - o Full Administration Access: Resources available via Management Portal

- **An easy-to-use Video Conferencing Solution**
  - o Easy to install, maintain, and service
  - o Auto-provisioning and self-configuration features
  - o Web-based Management Portal interface provides command and Management control over the hosted conferencing infrastructure.

- **High Service Availability**
  - o The service is hosted and delivered from Railtel data centre located at diverse locations and deliver industry leading performance and availability SLAs.

3.3 Key Benefits to the Customer

Some key benefits offered through this service are listed as below:

- **Single point of Contact for all Video Conferencing needs**
  - o End-to-end video service including endpoints, central infrastructure (such as MCUs) and networks.
  - o Video display systems, from Room system, desktop solutions to back end infrastructure all work together seamlessly and transparently.

- **Wide range of Display/Monitor options**
  - o Solution bundles for wide range of customer needs from the personal, small meeting room, office room to the large meeting rooms and boardrooms.
  - o Display Install configuration form Standalone, Wheel based, or Wall Mount based.
  - o Integrated codec based end point for optimum cost and best of quality with option to buy display unit separately.

- **Service Flexibility/Inter-operability**
  - o Integrator packages option support to clients who already have the display monitor or want to buy separately.
  - o Interoperability with third-party video units

- **Highly Scalable:**

- Add and remove endpoints and users, as and when they are required eliminating time and lag involved with project deployments.

- **Fast and responsive**
  - Seamlessly add resources to infrastructure at the click of a button – truly on-demand IT, reducing training costs and requirements.

- **Services Support**
  - Customer Web Self Service Portal for scheduling & managing the Video Conferences.
  - 24x7 Services Support from VNOC Centre ensuring high availability.

- **OPEX rather than CAPEX**
  - "Hire" rather than having to own conferencing assets and lower cost of service vs. build options provides the financial flexibility.

- **TCO Optimization**
  - Low price for performance with the systems optimized for both high and low bandwidths to help you balance cost with functions

- **Flexible Pricing & Usage options**
  - As video infrastructure resources can be added/ removed according to workload demands, clients only pay for what they use.

- **Video Conferencing System Solution Delivery**
  - Through a powerful combination of technologies and design it allows you and remote participants to feel as if you are all in the same room, the service portfolio has the potential to provide great productivity benefits and transform your business.

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4 SERVICE DELIVERY MANAGEMENT

4.1 Service Availability (SLA)

Separate comprehensive SLA document is there which is to be mutually agreed.

4.2 Service Activation & Establishment

To commence Service Activation and Establishment, the client is required to sign a Railtel TPaaS Services Agreement, fill in necessary service subscriptions and necessary payments.

4.3 Service Management

For any service disruptions, the client can contact Railtel Service desk by Phone or Email or the Management Portal 24 hours per day, 365 days a year. Administrators are able to raise administration requests online or other service administration requests.

4.4 Service reporting

The Managed Video Conferencing Service includes the reports available on demand including Setup Summary and Usage summary including:

- Room / asset lists – by location, asset type, ownership, etc.
- Usage reports – by data range, meeting type, location, system, user, department, etc.
- Issue / trouble reports – by location, type of problem, time to resolution, status, etc.