



CTBTO Operations Centre



Introduction

The Medium-Term Strategy (MTS) 2018-2021 documents the plan of action for the commissioning of the prototype On-Site Inspection (OSI) Operations Support Centre (OSC) to be co-located with the International Data Centre (IDC) Operations Centre (OPC) at the Vienna International Centre (VIC). The technical teams of the PTS (International Monitoring System (IMS), IDC and OSI Divisions) have made a joint effort to re-design and expand the existing IDC-OPC to realize an integrated operations facility for monitoring the operations of the IMS and IDC, including supporting infrastructure at the PTS headquarters, and to serve as the location for a potential deployment of the ad hoc CTBTO OSI-OSC following Entry-into-Force (EIF) of the CTBT.

The expansion of the capabilities of the IDC-OPC crosscut all technical functions associated with the operation of the verification regime and therefore, the name selected for the new facility is **The CTBTO/PTS Operations Centre (COPC)**.

This poster highlights the functional capability of the COPC.

Definition

The COPC is a place from which the IMS is monitored and supervised by staff on duty. The COPC serves as a location for a potential deployment of the ad hoc OSI-OSC at the CTBTO/PTS headquarters in the VIC. In addition, the facility serves for a wide variety of purposes derived from situations generated by different technical functions of the PTS such as information and communications technology (ICT) infrastructure, IMS Maintenance functions, development activities alongside analysts, Staff training, etc. The COPC also hosts a component dedicated to public information.



Abstract:

The Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) Provisional Technical Secretariat (PTS) Operations Centre (COPC) is a facility where the International Monitoring System is supervised by staff and is a potential deployment location for an ad hoc On-Site Inspection Operations Support Centre (OSI-OSC). The COPC is a contemporary version of the International Data Centre (IDC) Operations Centre. The new facility provides an integrated environment for supporting the technical teams of the PTS and a workbench for development of sustainable operations while in preparation for Entry into Force of the Comprehensive Nuclear-Test-Ban Treaty.

The COPC provides a centralized focus for monitoring and oversight of all PTS Operations and Maintenance (O&M) activities. The COPC ensures that: IT infrastructure is functional; IMS (authenticated) raw data reaches the IDC within Data Availability Specifications; continuous automatic data processing; data and products are distributed in timely fashion; necessary corrective actions are taken to maintain data quality and efficient cost-effective network operations. It provides timely reporting on the overall performance and operational status of the IMS verification system and provides a location for the core ad hoc OSI-OSC.

During an On-Site Inspection

The COPC could host the ad hoc OSI-OSC. After EIF the OSC will be available and capable to serve as a coordination location to support the preparation, conduct and reporting of an OSI by assisting the inspection team and the Director General (DG) of the CTBTO. To achieve these objectives, the OSI-OSC:

- Provides technical and operational support to the inspection team throughout the whole period of inspection, which includes coordination of support activities within the Technical Secretariat (TS), it provided overall situational awareness and emergency response;
- Coordinates the preparation activities within the TS during the launch of an inspection;
- Serves as the uninterrupted POC between the TS headquarters and the inspection team;
- Assists the DG in fulfilling his/her OSI-related responsibilities in accordance with the Treaty by reporting to the DG on the progress of the OSI, preparing required input/resulting from the OSI for preparation of documents, forms, reports, etc., to be presented by the DG to the Executive Council (EC), and coordinating the transport of samples for off-site analysis, if requested by the inspection team and
- Serves throughout the OSI as the secure repository of all OSI-related information that comes into possession of the OSC.

An OSI is a typical low-probability, high-impact event, which may happen rarely (or never), but if it happens, it would have significant consequences on the operation of the TS. Therefore, it is important that the TS maintain the capability and readiness of the COPC to host and support the OSI-OSC. During normal operations, when no OSI is ongoing, the COPC will serve as a platform for hands-on development of processes and tools derived from new strategies, for capacity building and training activities and for public information purposes. To maintain the COPC capabilities and readiness it is paramount that it be utilized regularly.

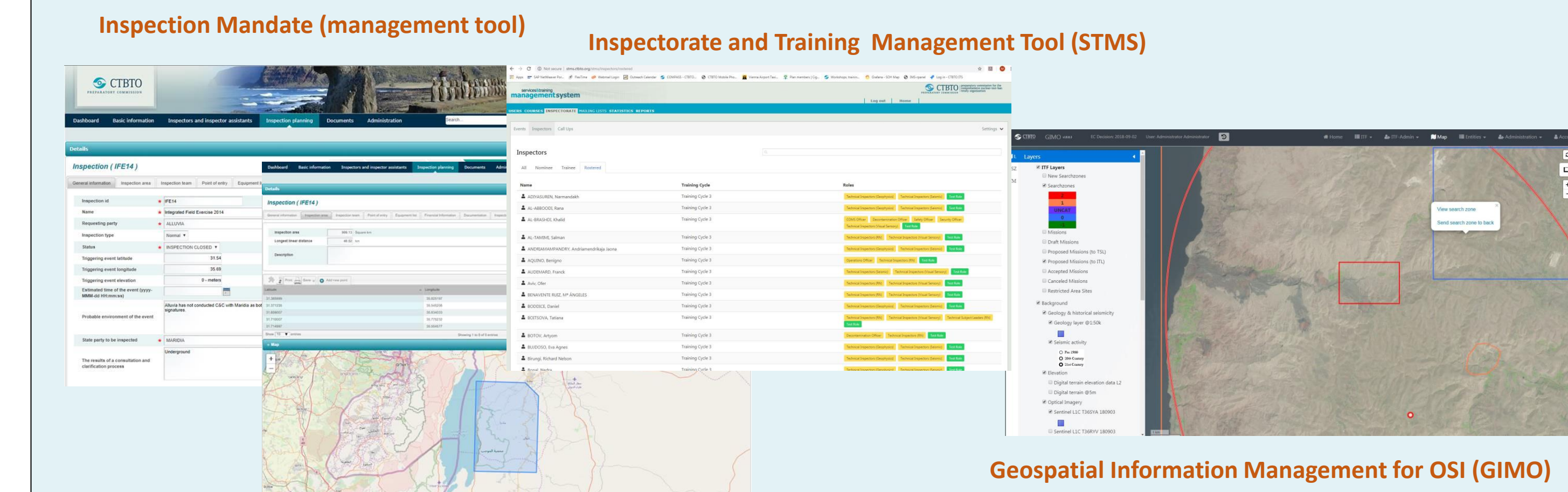
PTS Approach to IMS Maintenance

The operational activities are divided in three levels, all involving PTS staff, Equipment Providers (when required) and Station Operators (SO):

- **first maintenance level = Operations**, performed by the IDC/OPS Team, aims at monitoring the day-to-day activities at the facilities and the resolution of transient problems;
- **second maintenance level = Maintenance**, performed by the IMS/MFS Team in coordination with the IDC/OPS Team for resolution of issues requiring repairs and/or replacement of facility components and logistics, and;
- **third maintenance level = Engineering**, performed by the IMS/ED Team in coordination with the IMS/MFS and the IDC/OPS Teams for major upgrades or modifications to the facility design.

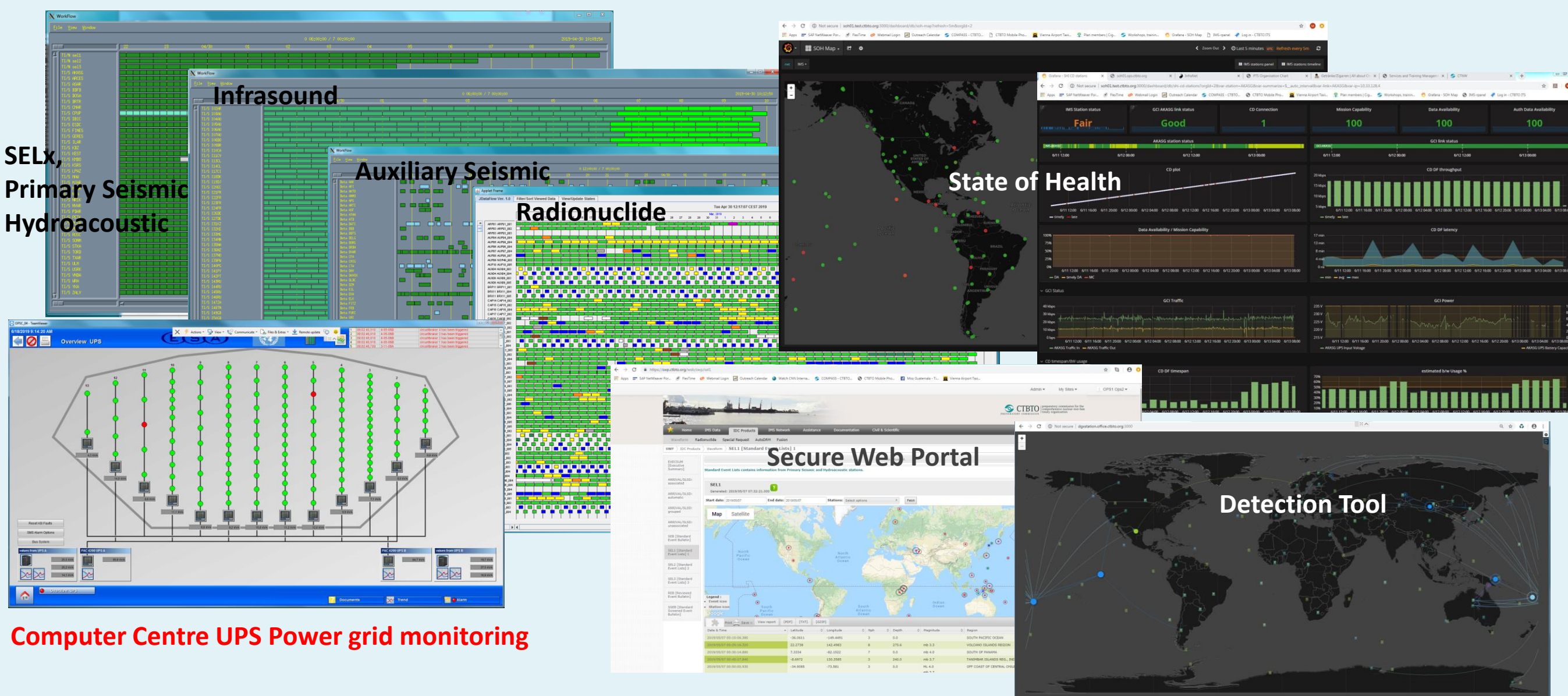
Supporting Tools (Software 2/2)

For OSI related tasks, the COPC is empowered with a Geospatial Information Management System for OSIs (GIMO), which is used for handling and storage of OSI related confidential information and data processing software for individual inspection techniques. The COPC also uses OSI databases, such as the OSI Databank, e-Library of OSI QMS documentation, Inspectorate Database (Services and Training Management Systems (STMS) based) and an inspection equipment database.



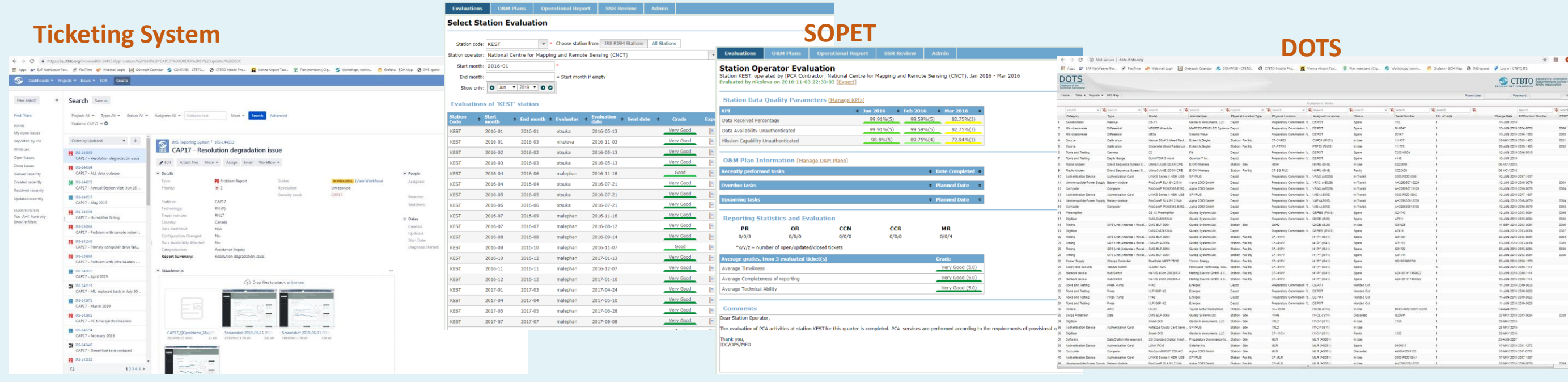
Supporting Tools (Software 1/2)

The COPC requires connections to various operational databases collecting real-time data from the IMS monitoring technologies as well as the GCI operational databases. For this purpose, **workflow tools** for incoming IMS data and automatic processing stages have been developed as well as an integrated **IMS State of Health (SoH) Monitoring System**, which is an ongoing project, has been established. The SoH monitoring is carried out continuously and automatically. The SoH monitoring parametrization (i.e. minimum outage time, connection status, latency, calibration, etc.) is set in accordance with limits defined in the IMS and IDC Operational Manuals. The ICT SoH Monitoring is performed by systems specifically developed for the data center, specifically the computer center, and corporate ICT systems and services.



Computer Centre UPS Power grid monitoring

The COPC manages system-wide issues using a common platform ticketing system (**IMS Reporting System - JIRA**). The IMS-SoH is connected to the ticketing system. The **Station Operator Performance Evaluation Tool (SOPET)** is used to compute and display indicators for the performance of the SO. The inventory and configuration control of the IMS is performed with the **Database of the Technical Secretariat (DOTS)**.



Mission

The COPC provides a centralized focus for the monitoring and oversight of all PTS O&M activities. In this regard, it coordinates O&M activities to:

- Ensure that the ICT infrastructure is functional, including cyber security;
- Ensure that IMS raw data reaches the IDC within data availability (DA) specifications;
- Ensure IMS raw data integrity through the authentication mechanism;
- Ensure continuous automatic data processing;
- Ensure that data and products are distributed in a timely fashion;
- Ensure that necessary corrective actions are taken to maintain data quality and efficient, cost-effective network operations;
- Provide timely reporting on the overall performance and operational status of the IMS verification system; and
- Provide a location for the ad hoc OSI OSC.

To achieve these objectives, the COPC:

- Provides a single point of contact (POC) for Station Operators (SOs), National Data Centers (NDCs) and all technical teams of the Commission for IMS SOs and ICT support.
- Monitors the arrival of authenticated data at the IDC and the dispatch of these data and products from the IDC to State Signatories and detects and identifies any operational problem preventing these processes to continue.
- Provides system-wide incident management through capabilities to identify, log and classify operational incidents in a ticketing system.
- Maintains the overall supervisory function to track progress on diagnosis and resolution of incidents and to close the incident when the investigation, corrective action, documentation and reporting is complete. All incidents are tracked by the COPC until they are resolved, and post-mortem analysis is performed for special cases.
- Collects experience and provides inputs for further development and maintenance of: consistent reporting tools; tracking systems to manage the incident detection; resolution and reporting process.
- Receives, coordinates and approves station outage requests.
- Provides a centralized repository of information on the network status and information related to O&M.
- Reports on the current performance and operational status of the IMS network, including reports on current operational problems.
- Acting in a supporting role,
 - Participates in the change management process by reviewing configuration change requests from an operational point of view;
 - Contributes as needed in the production of failure analysis reports which seek to determine the root causes of occurring incidents;
 - Similarly, contributes as needed to identify and document factors critical to operational performance and
 - Provide requested data during an OSI.

Capacity and Location

The COPC is designed to accommodate some 30 staff performing activities. Additionally, the facility can host up to 20 visitors at the COPC Visitor Room, without disturbing normal operations. During normal operations, the facility is devoted to COPC-IMS and COPC-ICT tasks while during an On-Site Inspection, or associated training/development, the OSI tasks prevail with little impact to the core essentials of other tasks.

The COPC is located at the Vienna International Centre (VIC) at building E, 6th floor (E06).

CTBTO/PTS Operations Centre Design

