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## The Copernicus Collaborative Ground Segment

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The EO missions are producing vast amounts of data from satellites and other systems which are stored, analyzed and distributed to a wide range of scientific users. The Earth observation datasets produced by the satellite are vast and their value to scientific community is unique. The ICT and Security elements of the EO Core Ground Segments have evolved over the time following, where possible, the technology trends. An hybrid virtual model has been designed by ESA to cover the needs of on-premise development and Operations, and the necessity to move data closed to the end-users for fast and easy dissemination. Three solutions have been implemented and are in operations (EOP Large Virtual Infrastructure Service - E.L.V.I.S., Dissemination Harmonization Platform DissHarm, and Virtual Pick-up Point), all providing operational efficiency, high performance and availability, as well unified visibility for the entire environment, both on-premise and off-premise. The dissemination functionalities have been moved to two provider's hosting facility and closer to the high speed internet access; the security services has been centralized and consolidated in two geographic locations, the major peripheral sites (e.g. ESRIN) have been consolidated and virtualized considering disaster recovery and business continuity requirements. The result is an hybrid Ground Segment witch allows an easy move of workload from on-premise to the central virtual hosting infrastructure, the real time engagement of the public provider's cloud, the simplification of the security Operation and management, the increase of productivity, and an improved capability of collaboration and cooperation with the ESA Partners.

The presentation " Collaborative Ground Segment" provides an overview of the main EO Core Ground Segments components, the Copernicus Core Facilities, the Network and Security Services, and the challenges in manage, operates and keep secure a large amount of data. The Data hubs operated by ESA and the Collaborative Copernicus Ground segment will be also introduced and discussed during the presentation.

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