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Data Communication for Nuclear Monitoring at the Swedish NDC

In the context of e.g. nuclear explosion monitoring, operating within local networks that feature enhanced security necessitates careful attention to data communication with external systems. The addition of an extra layer of security on the side of the data provider, such as the Comprehensive Nuclear-Test-Ban Treaty Organization's (CTBTO) Global Communication Infrastructure (GCI), introduces further complexities that must be carefully addressed to balance both functionality and protection. These challenges require solutions that maintain the integrity and reliability of data exchanges while ensuring robust security. This contribution presents the setup recently established by the Swedish National Data Centre (NDC) at the Swedish Defence Research Agency (FOI), in collaboration with CTBTO's International Data Centre (IDC), to securely receive and send waveform data in real time (SeedLink) and on demand (FDSN web services). Key components of the adapted solution include the implementation of an intermediate server located within a demilitarized zone network, the deployment of IDC's new VPN docker solution, and robust methods for transferring data received at the demilitarized zone network server to the internal, high security local network. At FOI, this setup now allows for direct access to data services that would otherwise only be reachable in a less secure network environment, as well as to the services within the GCI.

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