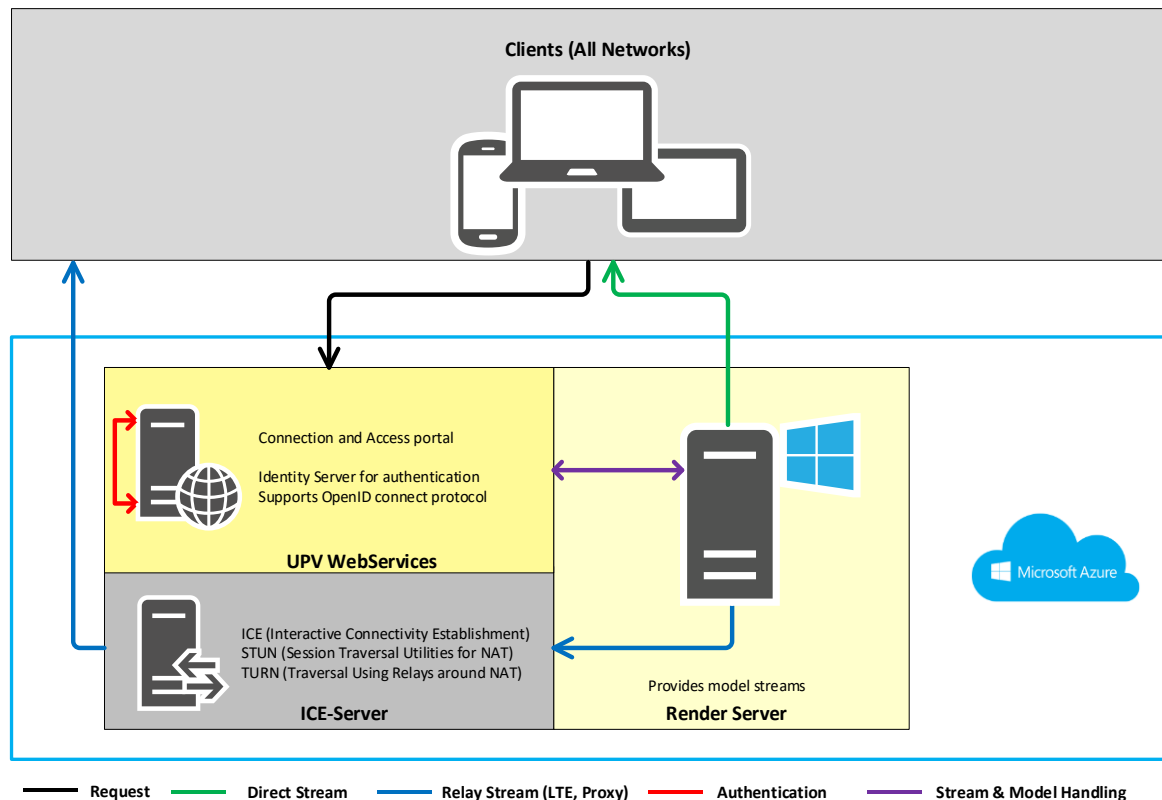# UniversalPlantViewer

BrowserBasedViewing hosted on Azure Cloud

Please find below the architecture diagram and hardware prerequisites for hosting UPV WebServices with BrowserBasedViewing technology on Azure Cloud.

Architecture for UPV WebServices on Azure Cloud

Clients (All Networks)

Connection and Access portal

Identity Server for authentication
Supports OpenID connect protocol

UPV WebServices

ICE (Interactive Connectivity Establishment)
STUN (Session Traversal Utilities for NAT)
TURN (Traversal Using Relays around NAT)

ICE-Server

Provides model streams
Render Server

Microsoft Azure

— Request   — Direct Stream   — Relay Stream (LTE, Proxy)   — Authentication   — Stream & Model Handling

System Prerequisites

UPV WebServices

- Hardware recommendation:
  CPU 4 cores, 16 GB of RAM
  Different Azure machines applicable, depending on customer preferences

- Software requirements:
  MS Windows Server (IIS) or
  Linux (apache or nginx)

- Ports required: TCP 443 (SSL)

- Certificate from official authority

ICE-Server (optional)

- Hardware recommendation:
  CPU 2 cores, 8 GB of RAM
  High bandwidth (>100Mbit bidirect.)

- Software requirements:
  Linux (with coturn)

- Ports required: TCP 443 (SSL)
  UDP ports depending on settings, 3 ports per concurrent stream, e.g.:
  50000 – 50300 for 100 conc. streams.

- Certificate from official authority

Render Server

Hardware recommendation:
For apx. 8-10 simultaneous streams:
Min: Standard_NV24s_v3 (16GB VRAM).

Recommended for more streams:
Standard_NV48s_v3 (M60, 32 GB VRAM) or
Standard_NV36ads_A10_v5 (24GB VRAM).
Multiple render servers can be used on one WebServices Unit for simple load balancing.

- Software requirements:
  Microsoft Windows

- Ports required: Acces to ports defined for UPV WebServices and ICE-Server

Requirements may vary with the use case. For detailed individual hardware recommendations, feel free to contact us.

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