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# RUGGEDCOM CROSSBOW Solution Blueprints

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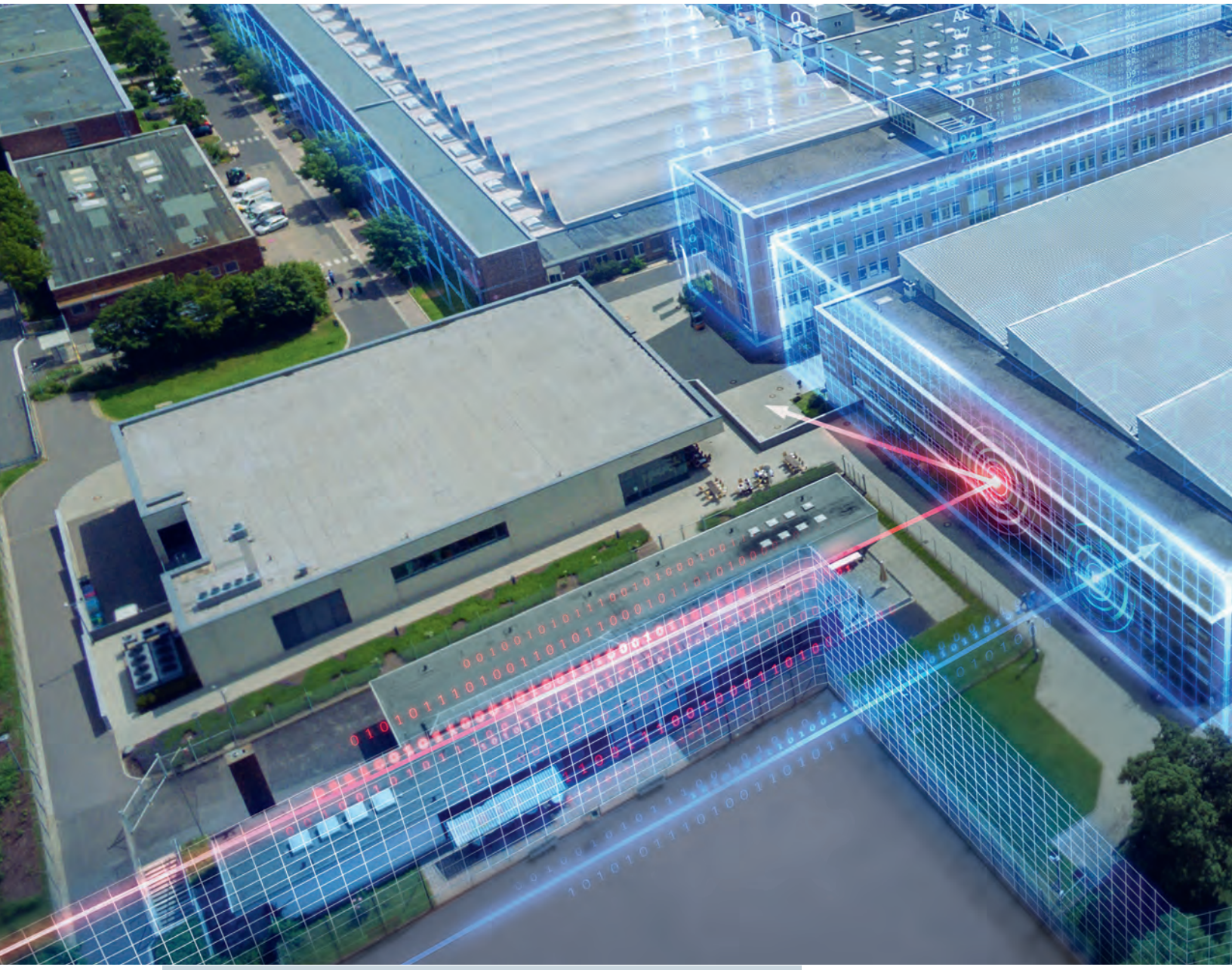

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# CROSSBOW Blueprints: Overview

Siemens RUGGEDCOM CROSSBOW is a scalable solution tailored to the ever increasing industrial and utility asset owners needs. It provides cyber-secure local and remote user access to and management for Intelligent Electronic Devices and their associated files. It is an enterprise class solution in compliance with the comprehensive and evolving security standards, including those of NERC CIP.

CROSSBOW's client-server architecture is designed to allow a large operator to easily manage remote connectivity to their population of field IEDs. User access is role based, and the user is not provided with any device password or network topology detail. User access is governed by the appropriate authentication model (e.g. Active Directory, RSA SecurID) and all user activity is logged and reported per the cyber security requirements.

# CIP Controller

**What is the Siemens RUGGEDCOM CIP Controller?**

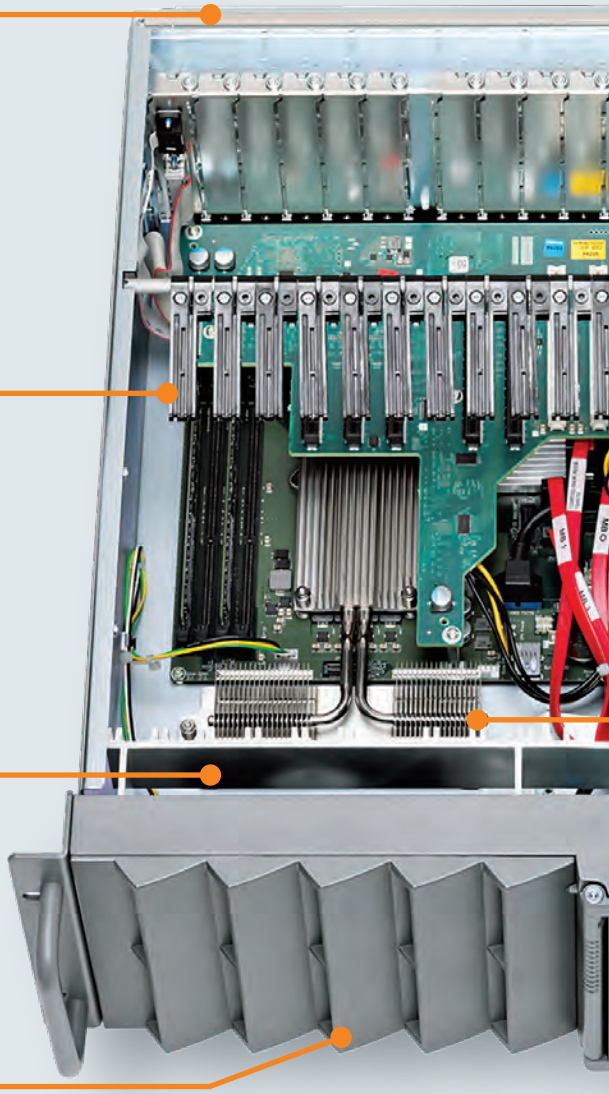
The Siemens RUGGEDCOM CIP Controller is a stand-alone appliance which offers the operator a consolidated solution to address their remote access, cyber security needs. The CIP Controller is based on the Siemens SIMATIC IPC 647D with Siemens RUGGEDCOM CROSSBOW installed on it.

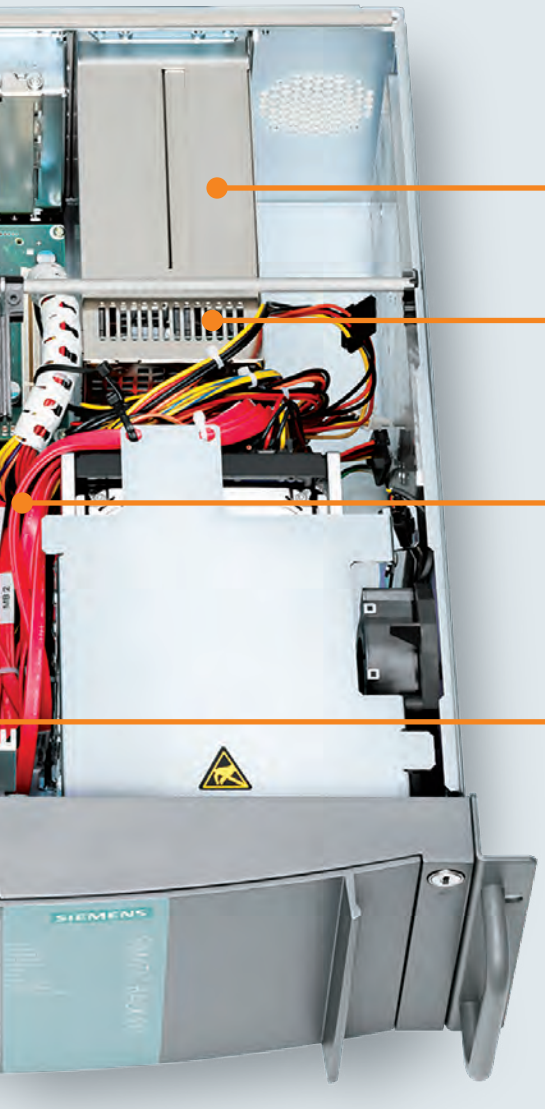
The IPC 647D is a rugged and extremely compact industrial PC in 19" design (2U). It is particularly suitable for space-saving implementation of fast computing and visualization tasks, e.g. image and data processing or industrial server applications. With a height of only 2 units and a small mounting depth, it optimally utilizes the space in 19" standard control cabinets (from 500 mm).

CROSSBOW is a cyber security solution that provides local and remote user access and allows for the management of Intelligent Electronic Devices (IED) an their associated files.

**The Siemens IPC 647D architecture**

**Measures for greater ruggedness and industrial compatibility, based on a SIMATIC Rack PC**




Industrial power supply reliably bridges voltage dips up to 20 ms (per NAMUR) or redundant power supply, can be swapped during operation

High vibration/shock resistance thanks to special hard disk holders

Cable grips ensure permanent contact of the plug-in connections

Internal USB interface to prevent unauthorized removal of a software dongle

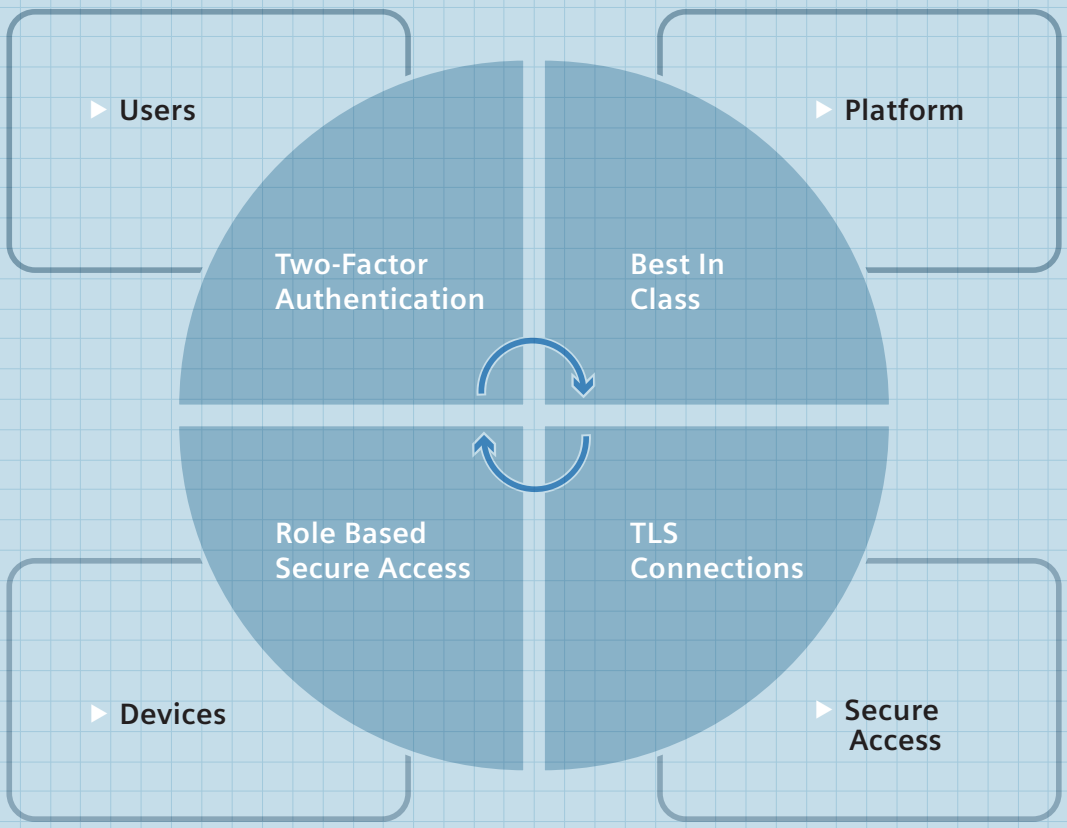

Siemens RUGGEDCOM has developed, and maintains, a set of pre-integrated Intermediate Remote Access solutions called Blueprints. These Blueprints address individual network operator business needs in specific configurations and environments grouped to cover dimensions associated with business drivers and type of service.

Siemens Solution Blueprints are structured environments that simplify the process of solving industry problems. They help avoid “reinventing the wheel” and significantly simplify what has traditionally been a potentially challenging process.

# CROSSBOW Blueprints

The pre-integration blueprints enables Professional Services to base their Intermediate Remote Access solution design on proven configurations, thus reducing risks and speeding up time to deployment. The Blueprints are designed to allow flexibility and to be extensible in terms of the size and configuration of the solution.

Each Blueprint has an associated set of usage scenarios that describe a particular configuration, and identify the challenges and critical success factors for successful service launch.

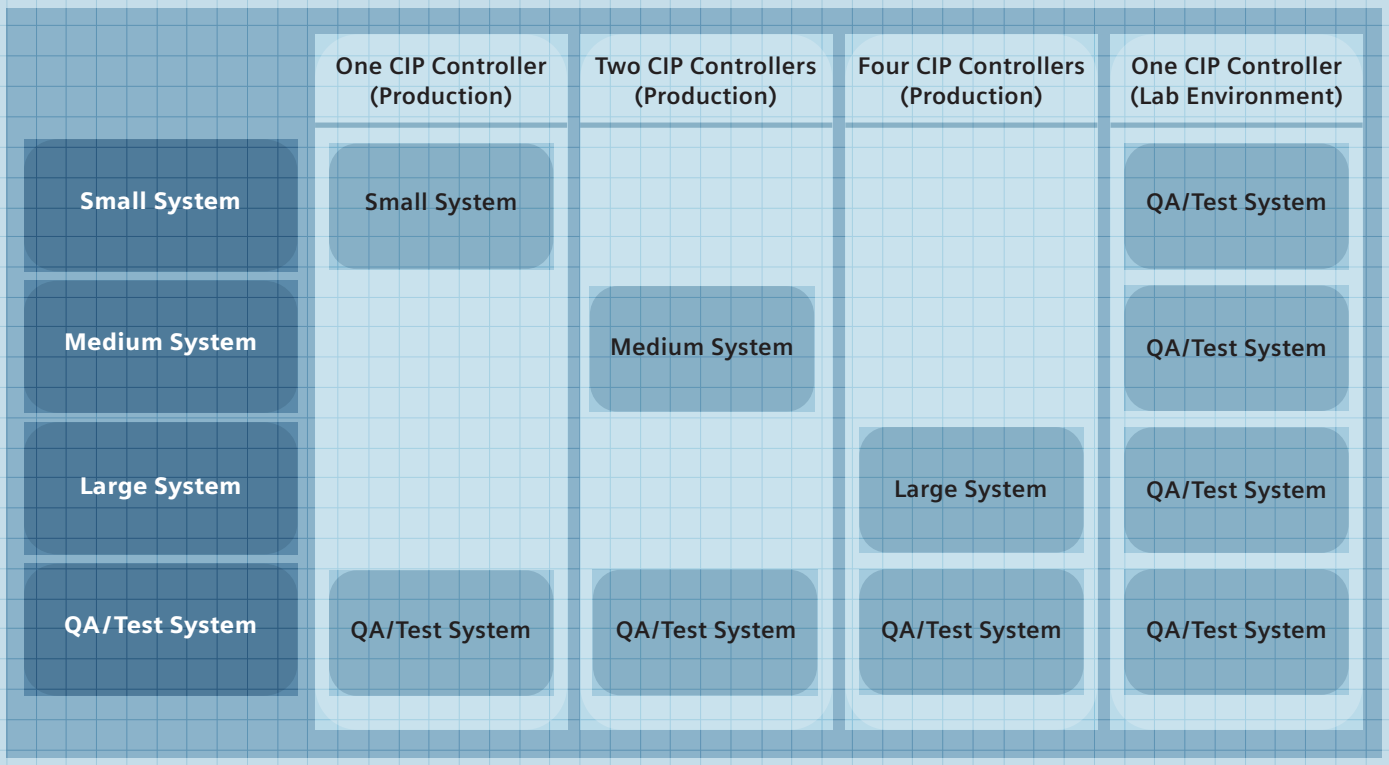


# System Configurations

The standard CROSSBOW CIP Controller blueprints are available in four different configurations. Each one of these configurations have been designed and configured to meet the security and remote access needs of operators ranging from small to large scaled enterprise networks.

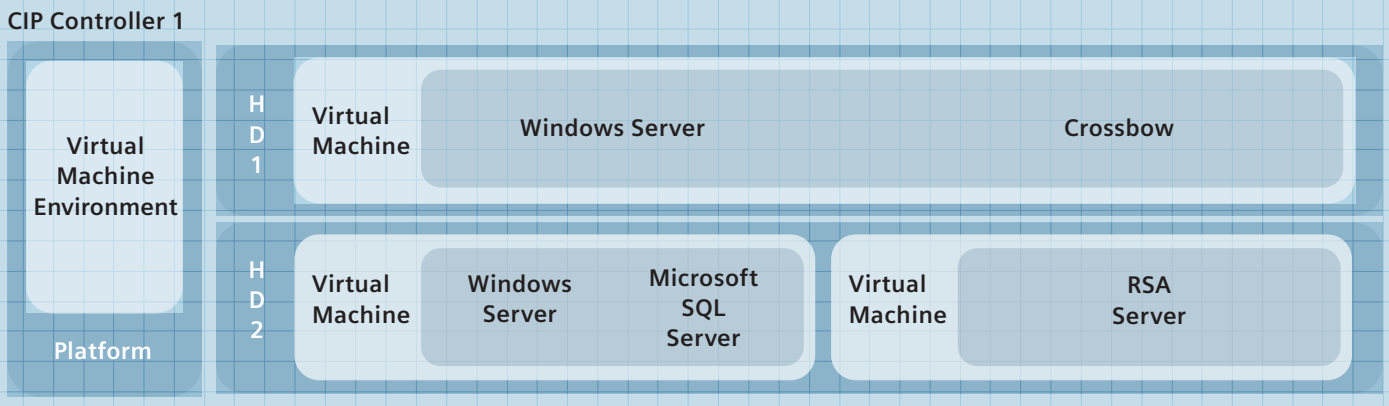
Each of these blueprints is intended to provide a framework and guidance to meet a variety of operators needs and are designed in a way that makes them flexible and extensible so that they can be enhanced to meet the integral convergence requirements in IT and OT environments.

Each one of the Siemens RUGGEDCOM CIP Controller Blueprints are designed and configured to address the performance and reliability requirements necessary to meet the security needs of strong two-factor role based access to remote devices.




| | Small | Medium | Large | QA System |
|---|---|---|---|---|
| No. IPC 647D | One Unit | Two Units | Four Units | Single Unit |
| No. Users | 1–10 | 11–100 | 101– Unlimited | Mirror Production |
| No. IEDs | 1–1,000 | 1,001 – 4,000 | 4,001 – 10,000 | Representative of Production |

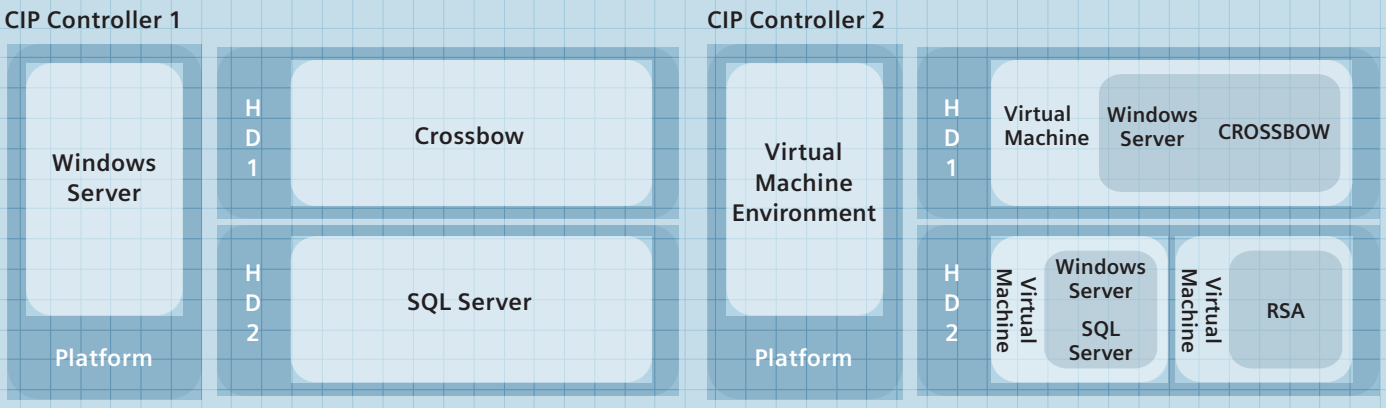
# Small Size




The single unit CROSSBOW CIP Controller blueprint is a turnkey appliance intended for operators that will only have a limited number of users and IEDs that need secure remote access.

| | Small |
|---|---|
| No. IPC 647D | One Unit |
| No. Users | 1–10 |
| No. IEDs | 1– 1,000 |

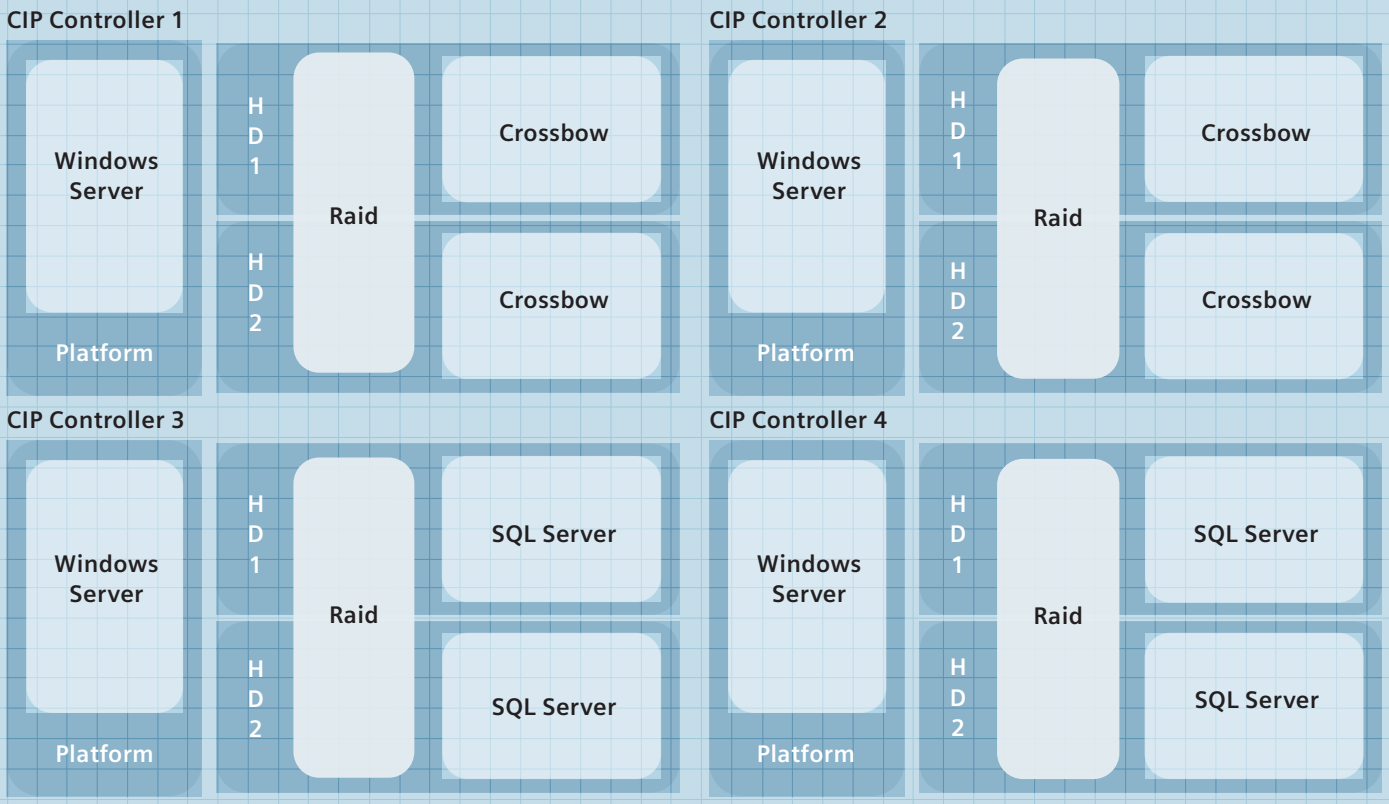
# Medium Size




The two unit CROSSBOW CIP Controller blueprint is intended for operators that will have several users and a medium number of devices that need secure, remote access. This configuration also provides a redundant configuration of the database to ensure best practice in database redundancy.

| | Medium |
|---|---|
| No. IPC 647D | Two Units |
| No. Users | 11–100 |
| No. IEDs | 1,001 – 4,000 |

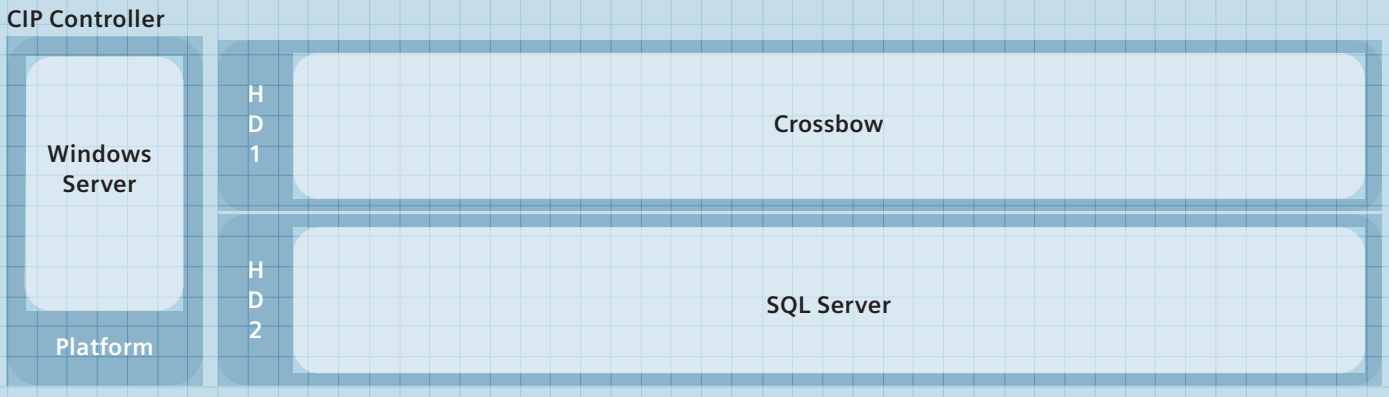
# Large Size




The four unit CROSSBOW CIP Controller blueprint provides a solution that will provide operators with numerous users and a large number of devices that need secure, remote access. This configuration provides RAID configuration for high availability for both the CROSSBOW application along with the SQL database.

| | Large |
|---|---|
| No. IPC 647D | Four Units |
| No. Users | 101 – Unlimited |
| No. IEDs | 4,001 – 10,000 |

# QA/Test System

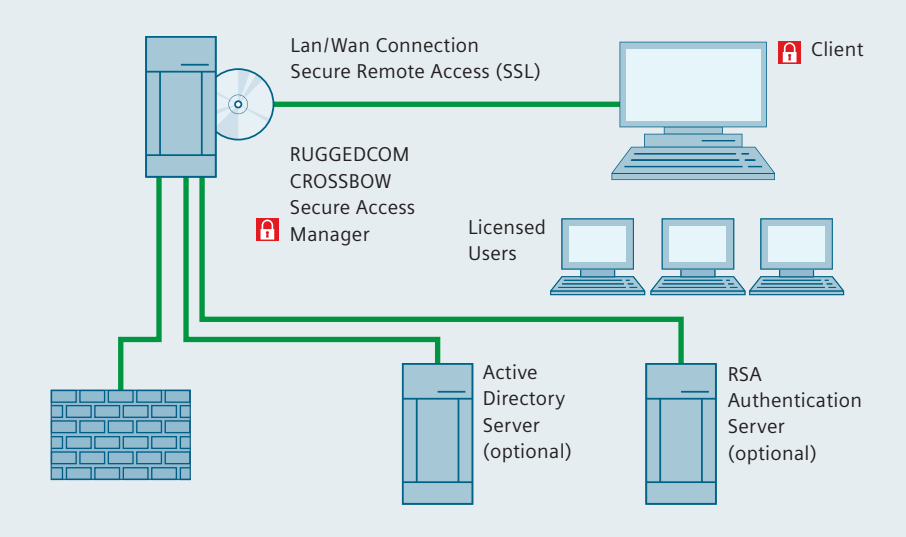



This single unit CROSSBOW CIP Controller blueprint provides a turnkey appliance intended for operators that need a representative system for a lab environment to test patch and firmware upgrades in a controlled lab environment prior to deploying in a production environment.

| | QA/Test System |
|---|---|
| No. IPC 647D | Single Unit |
| No. Users | Mirror Production |
| No. IEDs | Representative of Production |

# Single CIP Controller Implemented

The diagram on the right illustrates a typical CIP Controller architecture using RUGGEDCOM CROSSBOW. The CROSSBOW Secure Access Manager (SAM) is the central enterprise server through which all remote connections are made, and is the only trusted client source for the IEDs. This is the heart of the system, providing user role-based access control, site and IED access management.




Example of a Single CIP Controller Deployment

Siemens RUGGEDCOM with its unique expertise in networking and security domain, its industry leadership as a provider of networking devices and solutions for industry and utility networks, and its outstanding integrator capabilities brings the two worlds of IT and OT together. It provides several CIP CONTROLLER blueprints enabling secure remote access to address both network security along with cyber security requirements.

Siemens CROSSBOW CIP CONTROLLER blueprints provide industry and utility operators several options to quickly implement and deploy Secure, Remote Access Intermediate Systems.

- Comprehensive Secure Remote Access, Intermediate Systems and professional services for turnkey solutions.
- Pre-integrated blueprints reducing capital expenditures, risk, and time-to-deployment.

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