AMERICAN
AUTO-MATRIX®

HVAC CONTROL ACCESS CONTROL CRITICAL ENVIRONMENTS

PROVIDING SMART BUILDING SOLUTIONS® FOR

DURABLE FUNCTIONAL FLEXIBLE

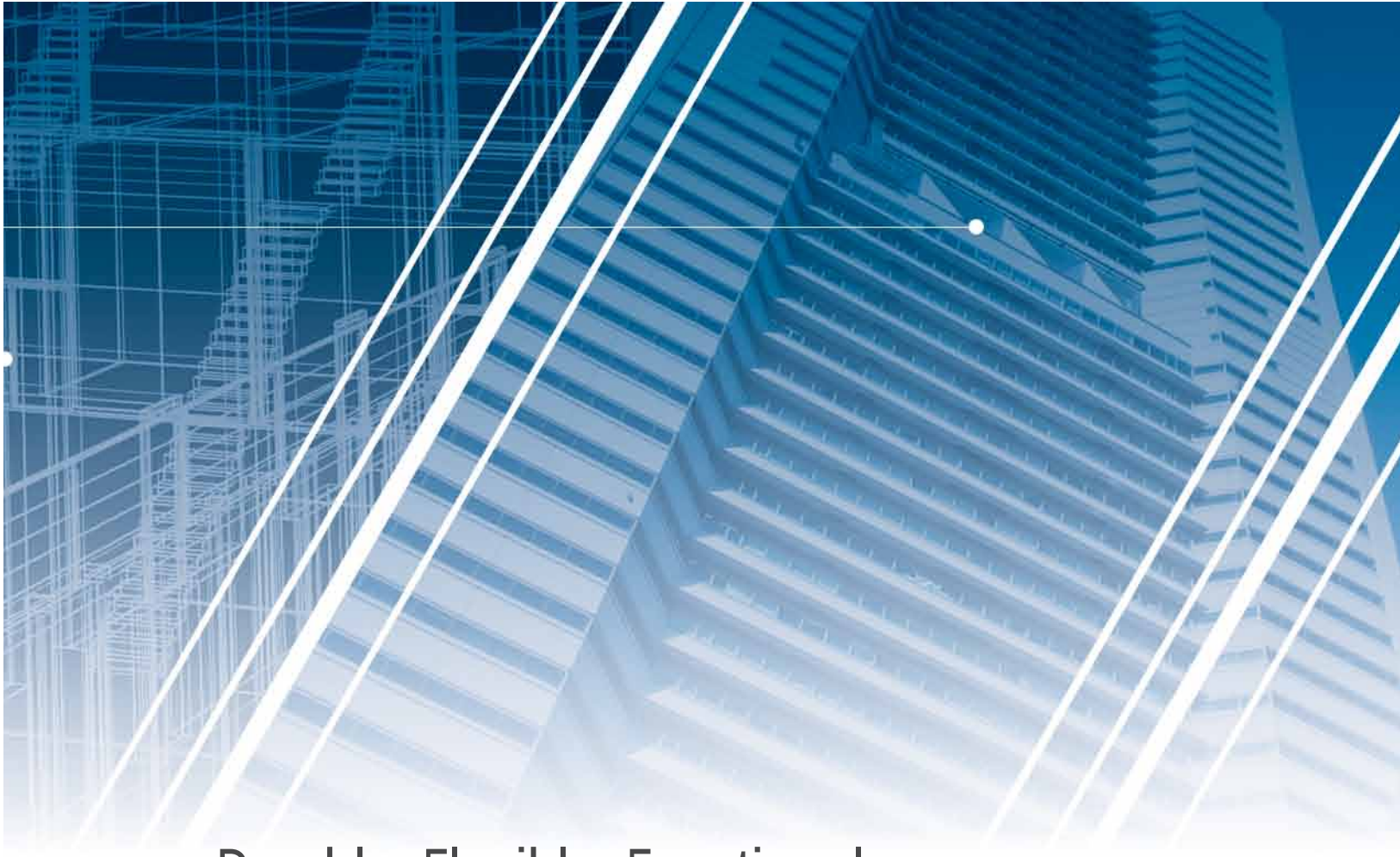
System Architecture

AMERICAN AUTO-MATRIX
SDVOSB/WOB CCR CAGE #4LL80

System Architecture

True innovation requires flexibility. That is why American Auto-Matrix® offers a multitude of architectural solutions that provide flexibility beyond comparison in the building automation industry today. Whether your project requires a single controller with a touchscreen small display, has a significant number of points and requires a web interface solution, or entails an enterprise level of sophistication, we have the right architecture for you.

Providing Smart Building Solutions® for over 30 years, our controllers have been designed to be backwards compatible. With sites worldwide still utilizing controllers installed in the early 80's until the present, we know it is important for our network of Solution Integrators to have the support and technology they need to maintain or upgrade their sites without high costs. This means no built in obsolescence.

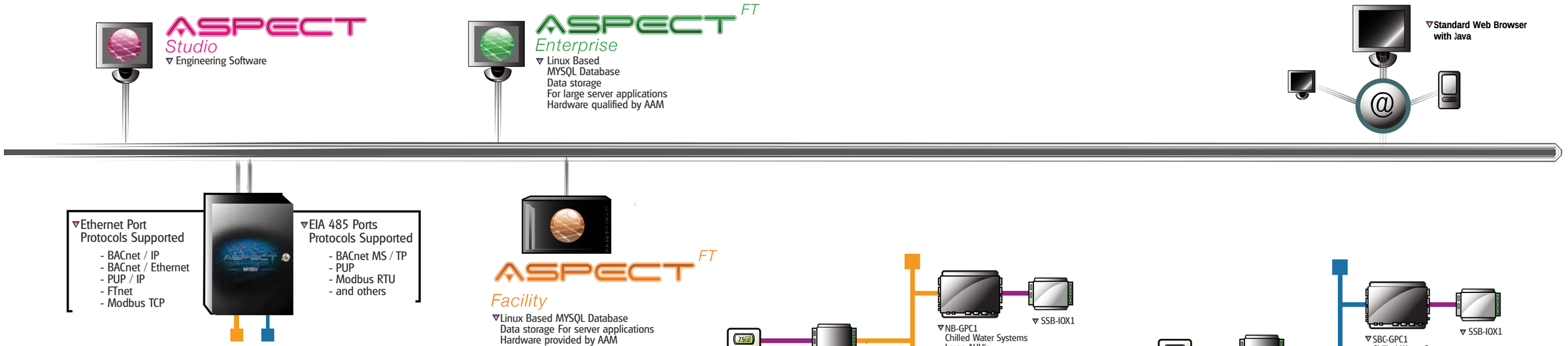


Durable. Flexible. Functional.

In addition to providing quality HVAC control, American Auto-Matrix also develops and manufactures solutions for Critical Environment Control, making it possible to integrate both systems. Combine this with truly open protocols, BACnet® capabilities, and LON connectivity and you have exactly what you need: flexibility that enables innovation.

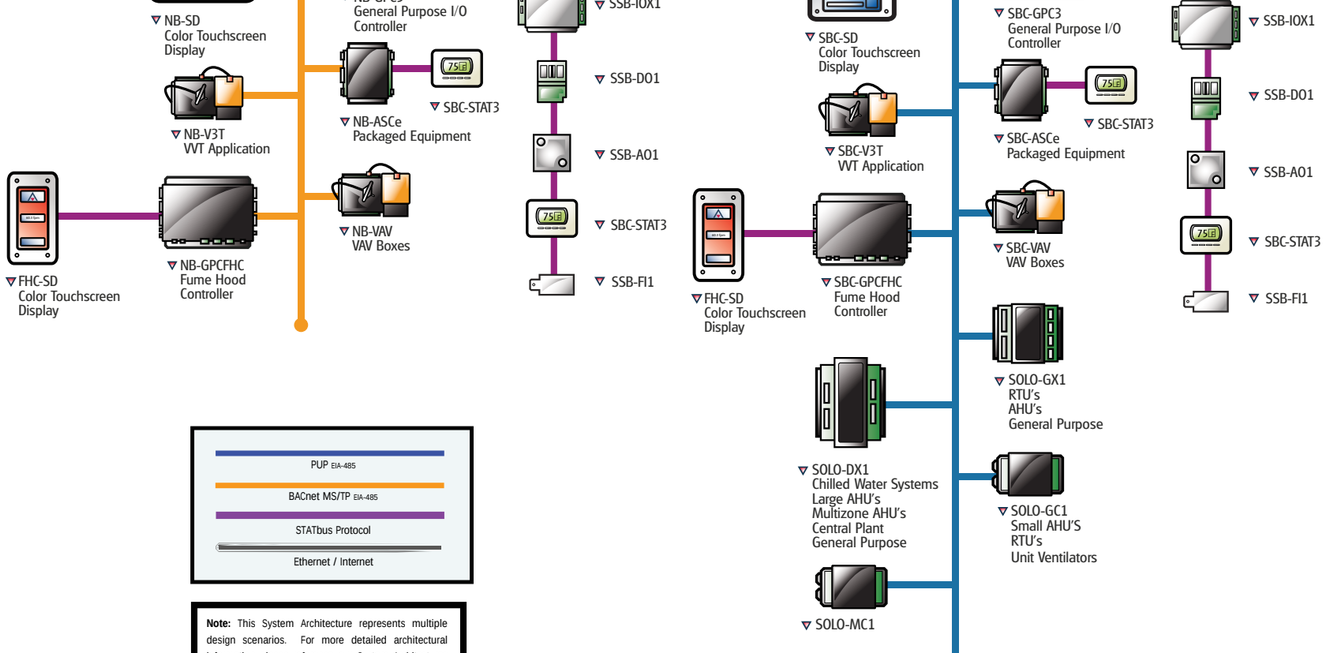
From the beginning it has been our intention to provide the smartest solutions to our Integrators; purposefully designing the ability to use our products for a variety of applications and functions while still maintaining a level of support and functionality unprecedented in the industry. We believe we are achieving our goals and know, with our technology, our customers will continuously have the solutions they need to effectively provide for their customer base, now and in years to come.

Aspect FT and Matrix

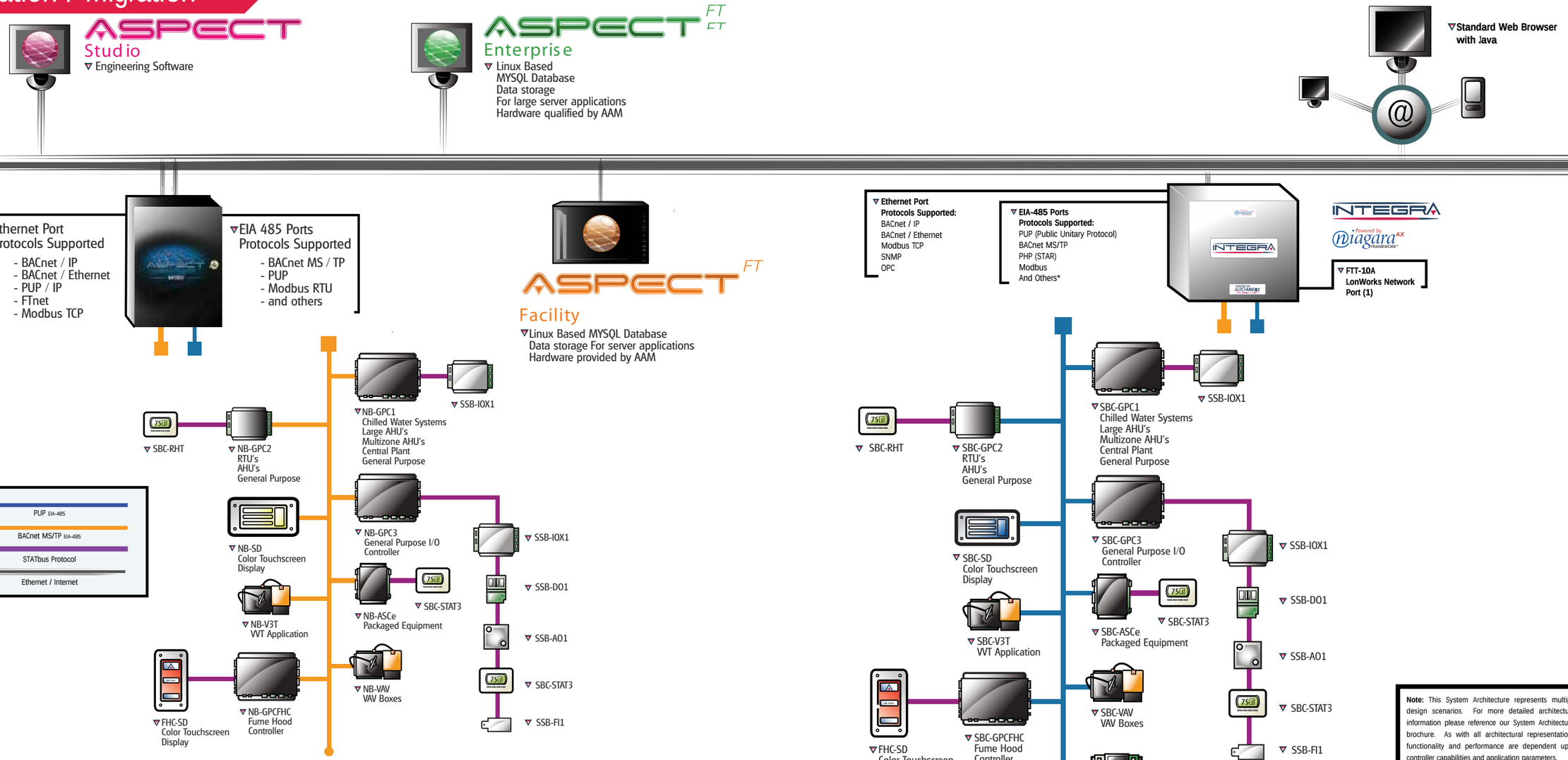


With the AspectFT control engine you are not limited to just one solution. As the Facilitating Technology (FT), this software platform is based upon open-standards used within multiple industries. Designed to perform control sequences and building management routines from an array of device platforms, AspectFT can communicate utilizing drivers such as BACnet®, American Auto-Matrix PUP, and Modbus®. Through varying aspects of the software, users can scale their projects based on size as well as hardware, and still receive the level of sophistication and control they expect. Flexible by design, AspectFT products provide affordable area control, field-bus network data routing, rich database connectivity options, and the ability to take data available through web services and apply it to traditional control applications and sequences.

As a member of the AspectFT family of products, the Matrix Area Controller is an embedded network controller, providing many features and functions not found in competitive building controller products. Using Matrix, users can control and manage their building automation system over any network or Internet connection. Included within the AspectFT control engine is an embedded web-server. With this, users can interact with their system using any standard web-browser.



Intergration / Migration



Note: This System Architecture represents multiple design scenarios. For more detailed architectural information please reference our System Architectures brochure. As with all architectural representations, functionality and performance are dependent upon controller capabilities and application parameters.

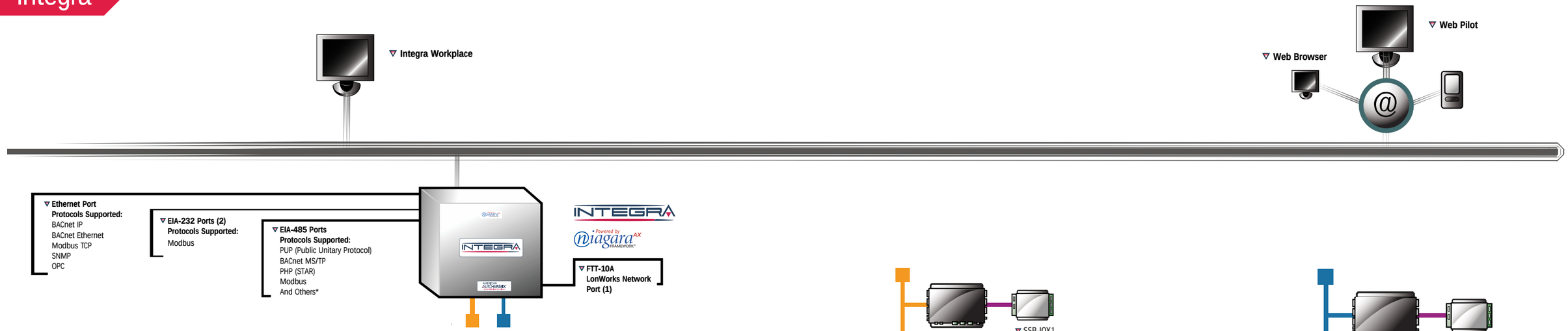
Through the utilization of open protocols such as BACnet, Integra and Apsect family products can co-exist on the same system architecture with one-another and maintain harmonized control and interaction with their respective systems. As our industry continues to push the envelope to leverage open standards in data layers implemented across Ethernet and Internet-networked connections, American Auto-Matrix provides and maintains a feature-rich road-map to support both cutting-edge product families. While each product family contains different philosophies, approaches and differentiators, both maintain the same course. This provides distributed control and network-based access to building automation systems in a reliable and efficient manner to meet the needs of building owners around the world.

Network Area Controller / G.U.I Product Comparison

AMERICAN AUTO-MATRIX® SMART BUILDING SOLUTIONS®

	Matrix Area Controller	Aspect Facility Server	Aspect Enterprise Server	Integra IT-XXX Series Controller	Integra Supervisor and V.A.C
Protocol Support					
	AAM PUP - EIA-485 AAM PUP/IP BACnet/IP BACnet/Ethernet (8802-3) BACnet MS/TP Modbus TCP Modbus RTU FTNet (Peer-to-Peer) STATbus (future)	AAM PUP/IP BACnet/IP BACnet/Ethernet (8802-3) Modbus TCP FTNet (Aspect Peer-to-Peer)	AAM PUP/IP BACnet/IP BACnet/Ethernet (8802-3) Modbus TCP FTNet (Aspect Peer-to-Peer)	AAM PUP and PHP - EIA-485 BACnet/IP BACnet/Ethernet (8802-3) BACnet MS/TP Modbus TCP Modbus RTU LonWorks (FT-10 and CEA-852) Niagara Network (Peer-to-Peer)	BACnet/IP BACnet/Ethernet (8802-3) Modbus TCP OPC (Client) SNMP LonWorks (CEA-852) Niagara Network (Peer-to-Peer)
Operating System					
OS Implementation	Embedded Linux OS	Embedded Linux OS	Embedded Linux OS	Embedded QNX OS	Windows Operating System
Control Foundation	AspectFT	AspectFT	AspectFT	NiagaraAX Framework	NiagaraAX Framework
Communication Ports					
Ethernet	10/100MB Ethernet	10/100/1000MB Ethernet	Platform Dependent	10/100MB Ethernet	Platform Dependent
Serial	Single or Dual RS-485 Ports	n/a	n/a	Single or Multi RS-485 Ports	n/a
Web Connectivity					
Graphical User Interface	Yes (Web-based, included)	Yes (Web-based, included)	Yes (Web-based, included)	Yes (Web-based, optional)	Yes (Web-based, included)
Browser-based Technology	Java, HTML, XML	Java, HTML, XML	Java, HTML, XML	Java, HTML, XML	Java, HTML, XML
Hisorical Database Services	Native JDBC - MySQL, MSSQL, HSQL	Native JDBC - MySQL, MSSQL, HSQL	Native JDBC - MySQL, MSSQL, HSQL	Embedded Archon with export capabilities using optional drivers	Embedded Archon with export capabilities using optional drivers
Web Services Client Utilization	Yes	Yes	Yes	Yes	Yes
Web Server Implementation	Custom, Secure	Custom, Secure	Custom, Secure	Custom, Secure	Custom, Secure
Calendar Integration Support	iCalendar Integration	iCalendar Integration	iCalendar Integration	Unique to Niagara Framework	Unique to Niagara Framework
Product Configuration					
Engineering Software	AspectStudio	AspectStudio	AspectStudio	Integra Pro	Integra Pro or Built-in Interface
Current Window OS Technology Support	Yes	Yes	Yes	Yes	Yes
Technology Base	Java, HTML, XML	Java, HTML, XML	Java, HTML, XML	Java, HTML, XML	Java, HTML, XML
Support for Remote Engineering	Yes	Yes	Yes	Yes	Yes
Embedded Project Simulator	Yes	Yes	Yes	Yes	Yes
Rapid Duplication and Component Tools	Yes	Yes	Yes	Yes	Yes
Building Control Application Support					
Alarm Management	Yes	Yes	Yes	Yes	Yes
Alarm /Event Notification via e-mail	Yes	Yes	Yes	Yes	Yes
Trend Logging and Management	Yes	Yes	Yes	Yes	Yes
Report Generation	Yes	Yes	Yes	Yes	Yes
Master Scheduling	Yes	Yes	Yes	Yes	Yes
Comprehensive Function Library	Yes	Yes	Yes	Yes	Yes
Custom Programmability	Yes (Graphical and Java Scripting)	Yes (Graphical and Java Scripting)	Yes (Graphical and Java Scripting)	Yes (Graphical and Baja)	Yes (Graphical and Baja)
BACnet Support					
Annex-J (Routing and BBMD)	Yes	Yes	Yes	Yes	Yes
Encompassing Standard Object Support	Yes	Yes	Yes	Yes	Yes
Support for Proprietary Objects	Yes	Yes	Yes	Yes	Yes

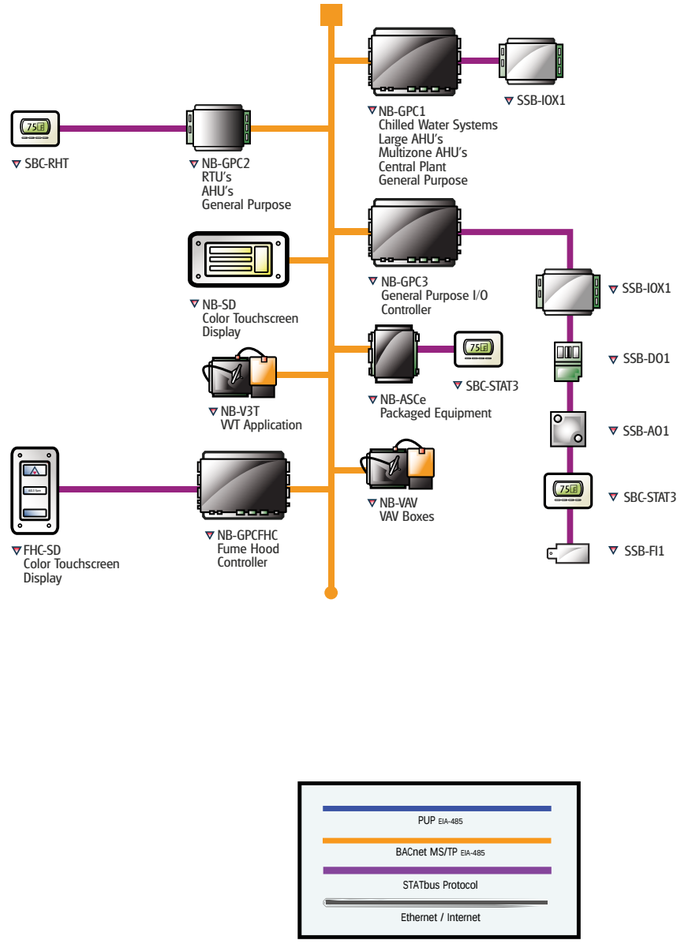
Integra

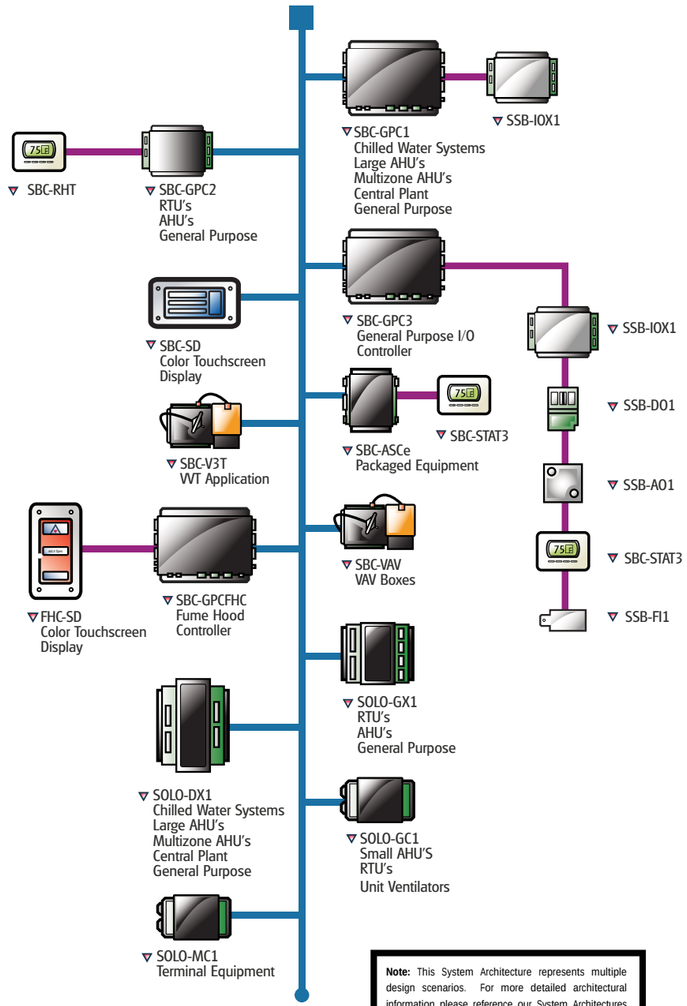


The Integra Architecture provides a robust platform for integrating multiple networks into one unified source. Powered by the NiagaraAX® Framework, Integra is a powerful embedded web appliance capable of integrating American Auto-Matrix PUP, BACnet, legacy PHP, and a variety of popular open protocols into a cohesive real-time control network.

A single Integra controller contains up to four EIA-485 ports, up to two EIA-232 ports, one 10/100Mb Ethernet port, and a dedicated FT-10 port for LonWorks applications. With standard area controller capabilities and multiple configuration modes, Integra provides a web-based graphical user interface, providing users with the means to monitor and modify control system elements from any standard web-browser (e.g. Microsoft Internet Explorer, Mozilla Firefox, etc.).

All data processed by Integra controllers can be directed back to Integra Supervisor, a PC-based software package designed to provide server storage of histories, alarms, and many other data elements kept within an Integra controller, creating high-level enterprise capabilities.





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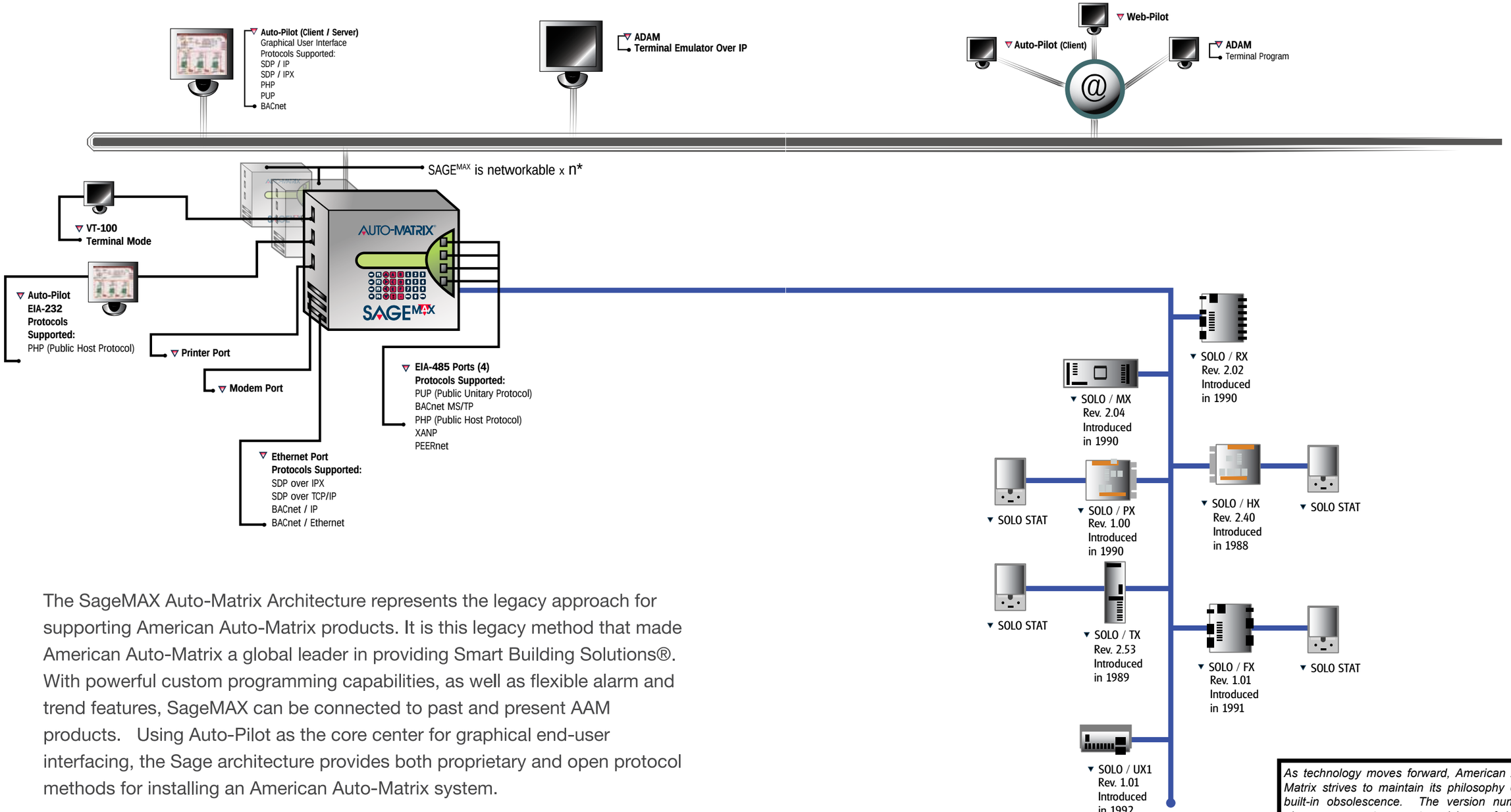
Legacy Architecture



The SageMAX Auto-Matrix Architecture represents the legacy approach for supporting American Auto-Matrix products. It is this legacy method that made American Auto-Matrix a global leader in providing Smart Building Solutions®. With powerful custom programming capabilities, as well as flexible alarm and trend features, SageMAX can be connected to past and present AAM products. Using Auto-Pilot as the core center for graphical end-user interfacing, the Sage architecture provides both proprietary and open protocol methods for installing an American Auto-Matrix system.

As technology moves forward, American Auto-Matrix strives to maintain its philosophy of no built-in obsolescence. The version numbers above represent current revisions of legacy product firmware that have been tested and are confirmed to communicate with the Aspect and Matrix family of products (see pages 3 and 4 for the Aspect and Matrix System Architecture).

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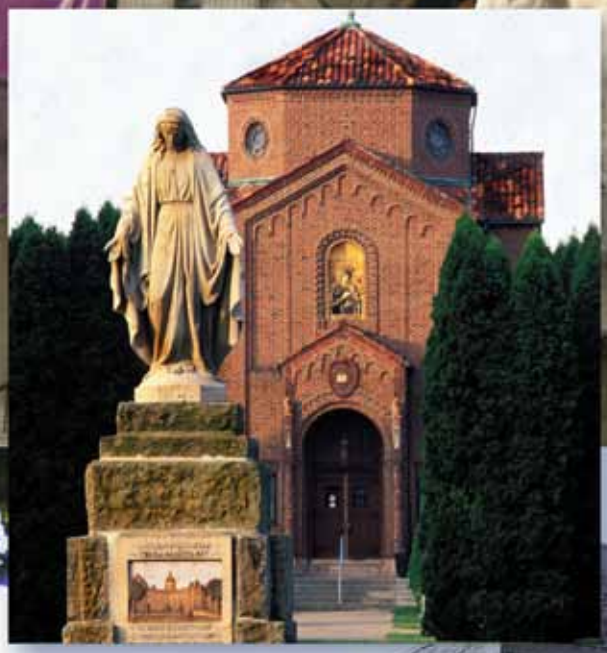


"Smart" means our products are designed to think like people, not like machines. We continually strive to design and develop technologies for the building automation industry which change the way people think about their buildings. Our products provide comfort, safety, and cost effective design for the future.

"Building" originates from our focus on relationships. The success of each project is based on the relationships that are developed with our Solution Integrators and their customers. This relationship is key to how well our products serve the needs of people.

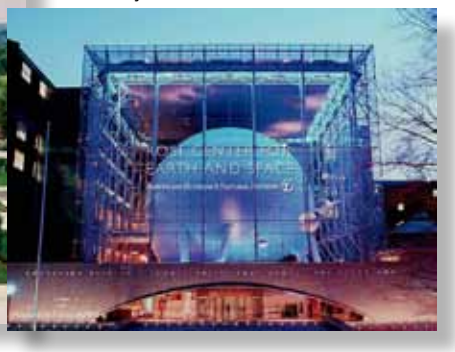
"Solutions" reflects our many technological innovations – including the first to offer direct digital control (DDC) and open communication protocols, generation-to-generation compatibility, patented laboratory and fume hood controls, and access control systems, as well as unparalleled support and service to our Solution Integrators.

AAM installations include places such as the American Museum of Natural History where exhibits such as Leonardo da Vinci's Codex Leicester: A Masterpiece of Science required controls to regulate climate to preserve the last privately held manuscript of Leonardo da Vinci; and the Zeiss Star Projector, one of the most advanced projectors in the world, that utilizes AAM controls to regulate temperature and humidity. Installed sites also include the University of Maryland, ranked by the Carnegie Foundation in the top tier of national research universities, which uses the Auto-Flow® laboratory control system because of its unique capability to provide a total fume hood control solution that "allows for maximum efficiency and increased energy savings while providing precise temperature, humidity, and pressure control throughout the day for students and faculty alike." *

Our American made products, approach to open systems, commitment to backwards compatibility, and continuous technological innovation, coupled with the best customer service and support, makes American Auto-Matrix the premier institution for Smart Building Solutions®

* "University Known for IT Experiences Advantages of Single Source Controls." Engineered Systems Magazine: Copyright 2008

AAM Installations: Stating at the top right (CCW): Independence Blue Cross Hospital, New York City Public Library, St. Bonaventure University, Anglo Platinum, Haverford College, University of Maryland, American Museum of Natural History



Just Plain Smart

System Architecture

The American Auto-Matrix (AAM) System Architecture is built upon the notion of open protocols and backwards compatibility. Our controllers have a legacy of innovation and performance and are the most flexible, durable, and functional controllers in the industry.

www.aamatrix.com

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