

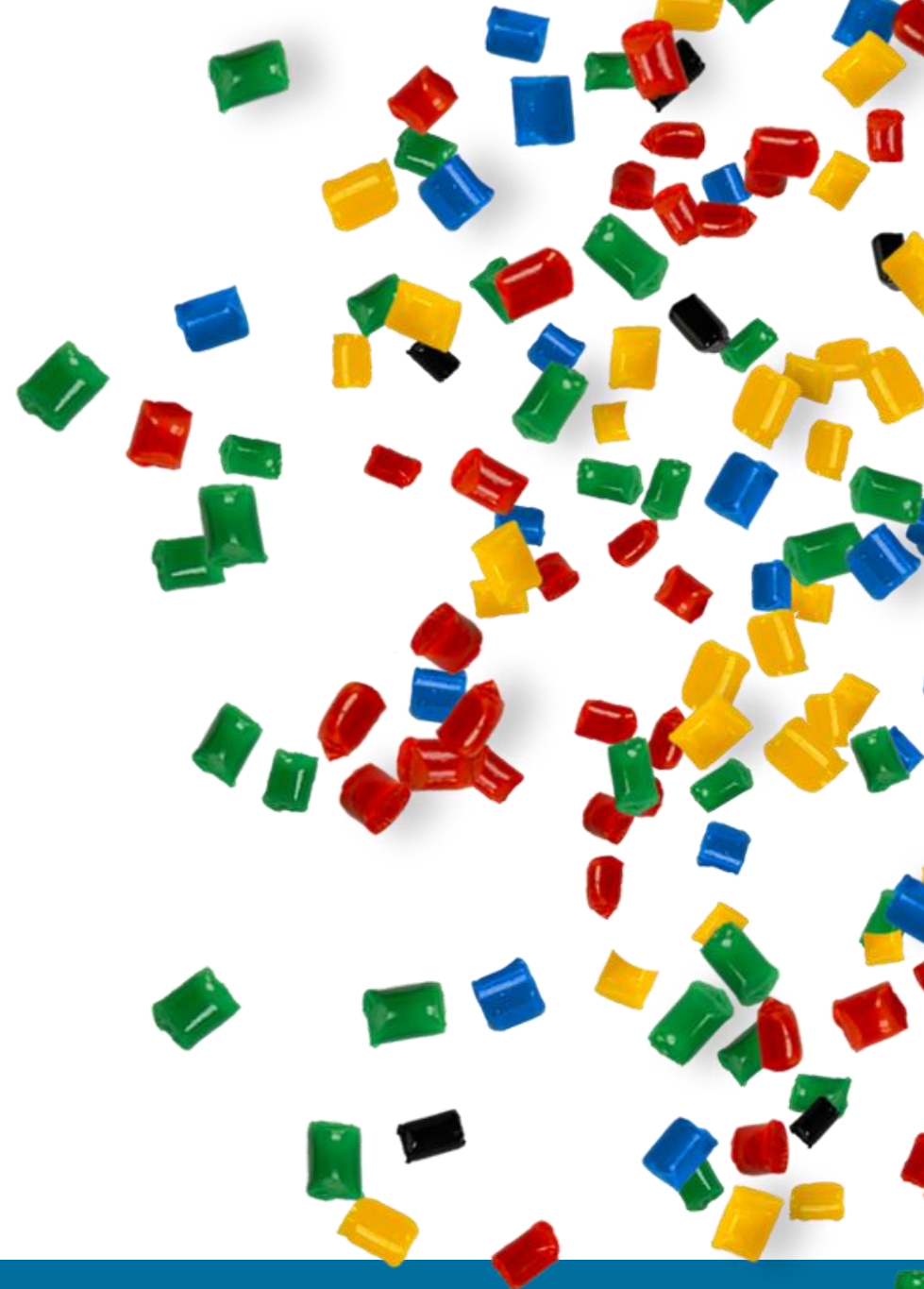


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PEOPLE. PARTNERS. POSSIBILITIES.

**From Compound to Component:**  
**Material Innovations Powering AI Data Centers**

Megan Kravec – Aurora Material Solutions  
Industrial Market and Product Manager



- **Who is Aurora Material Solutions**
- **Why AI Data Centers**
- **The Data Center Landscape**
- **The 9 Infrastructure Segments**
- **Aurora's Position in the Value Chain**
- **How Aurora Works With the Component Manufacturers**

Aurora Material Solutions is a leading innovator in custom-engineered polymer compounds, specializing in high-performance rigid and flexible PVC and ETP formulations that power critical products across automotive, building and construction, electrical and electronics, consumer goods, and industrial markets.

### PVC Compounds

#### Select Applications



Deck and Rail



Industrial Cable



Window & Door

- Extensive offerings for durable, weather resistant B&C applications
- Focused on growth in underpenetrated end markets (E&E, healthcare)
- Significant growth across industrial applications (~21%<sup>1</sup> - '20-23 CAGR)

### Flexible Engineered Thermoplastic Compounds

#### Select Applications



Communication Cable



Battery Case



Transit Cable

- Focused on flexible low-smoke zero halogen technologies
- Capitalizing on industry megatrends, including electrification, urbanization and increasing healthcare

## Aurora's Product Portfolio Overview

### Rigid Engineered Thermoplastic Compounds

#### Select Applications



Medical Cart



Automotive Interior



Gun Handles, Grips, Guards

- Customized properties for demanding applications and customized color capabilities
- High-growth potential in electrical & electronics supported by UL specifications

### Sustainability-Focused Product Solutions

#### Select Applications



Electrical & Electronics



Outdoor Furniture



Building Products

- First-mover in sustainable polymer solutions through AuroraEcoplast™
- Significant benefits, including (i) manufacturing energy savings, (ii) water and waste conservation and (iii) landfill avoidance, among others



Aurora Material Solutions has launched its **AuroraEcoplast™ Product Platform**, paving the way for sustainable polymer solutions.



**BEING A SUSTAINABLE LEADER IN THE INDUSTRY MEANS MINIMIZING THE IMPACT OF OUR MANUFACTURING OPERATIONS AND THE DOWNSTREAM IMPACT OF OUR PRODUCTS.**

- Aurora is **+Vantage Vinyl Gold**, obtaining 100% compliance with all Guiding Principles and Implementation of at least two Advanced Practices and one Innovative Practice
- **First North American PVC compounder to achieve Gold Level by GreenCircle Certification System**
- **Let Aurora innovate a custom sustainable polymer solution for you**



***Purpose built  
manufacturing footprint  
with capacity for growth***

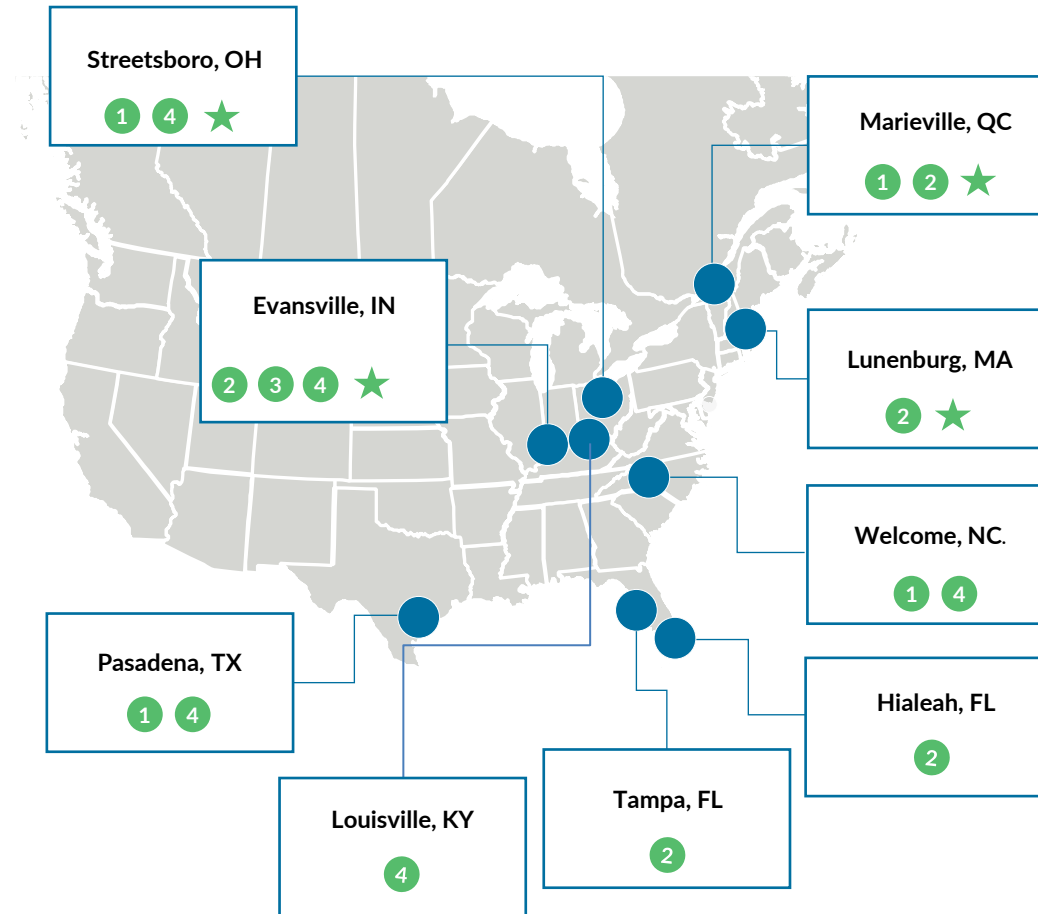
**Benefits to Customer**

- ✓ Assurance of supply through multi-site manufacturing
- ✓ Available capacity to support future growth
- ✓ Dedicated innovation centers to support R&D and formulation advancement / optimization
- ✓ Infrastructure in place to support freight optimization

**Manufacturing Site Capabilities**

|           |          |     |                       |                   |
|-----------|----------|-----|-----------------------|-------------------|
| 1         | 2        | 3   | 4                     | ★                 |
| Rigid PVC | Flexible | ETP | Sustainable Solutions | Innovation Center |

**Manufacturing Facility Overview**





## Data Acceptance Program (DAP)



•**Accelerated UL Yellow Card Certification** – reduced lead times via optimized specimen prep, testing protocols, and direct submission workflows

•**3rd-Party Certified Laboratory Data** – ISO/IEC 17025–accredited, independently verified results with full regulatory traceability

•**End-to-End UL Yellow Card Testing & Approval** – comprehensive coverage of UL 94 flammability, RTI, and mechanical property retention (ASTM/IEC)

•**Advanced Material Characterization & Identification** – FTIR, DSC, and compositional verification for incoming resin qualification

**DAP Lab Test Equipment & Capabilities**

| Test Equipment                              | Purpose                                             | Test Methods & Standards                  |
|---------------------------------------------|-----------------------------------------------------|-------------------------------------------|
| Xenon Arc Chamber                           | Simulated weather exposure                          | ASTM D7869, ASTM G155                     |
| QUV Chamber                                 | Simulated weather exposure                          | Multiple ASTM Standards                   |
| Differential Scanning Calorimeter           | Polymer Identification, characterization & analysis | Waters TA                                 |
| Thermogravimetric Analysis                  | Polymer Identification, characterization & analysis | Waters TA                                 |
| FTIR Spectrometer, ATR, Film, Evolved Gases | Fourier Infrared Spectroscopy                       | Material Identification                   |
| XRF Analyzer                                | X-Ray Fluorescence Elemental Analysis               | Identify & Qualify Elemental Composition  |
| Melt Flow Apparatus                         | Melt Flow Rate                                      | ASTM D1238/ISO 1133-1                     |
| Izod Charpy/Impact Testers                  | Izod/Charpy Impact/Tensile Impact                   | ASTM D256, D4812, E23, ISO 179-1/2        |
| Izod Notching Machines                      | Notched Izod/Charpy Specimens                       | ASTM D256, D4812, E23, ISO 179-1/2        |
| Gardner Impact Test Apparatus               | Fall Dart Impact                                    | ASTM D5420                                |
| Universal Tester                            | Tensile & Flex Mod                                  | ASTM D638, ISO 527-1/2, ASTM D790, ISO178 |
| Heat Deflection Tester                      | Heat Deflection Temp & Vicat Softening Temp         | ASTM D648, ISO 75-2, ASTM D1525, ISO 306  |
| Flammability Test Chamber                   | Flammability Ratings                                | UL94                                      |
| Muffle Furnaces                             | Ash Content Analysis                                | ASTM D5630, ISO 3451                      |
| 60° Gloss Meters                            | Gloss Measurement                                   | ASTM D2457, ISO 2813                      |
| 20° Gloss Meter                             | Gloss Measurement                                   | ASTM D2457, ISO 2813                      |
| Density Balances                            | Density/Specific Gravity                            | ASTM D792, ISO 1183-1                     |
| Computrac Vapor Pro                         | Mositure % Analysis                                 | Computrac                                 |
| Surface Resistivity Meter                   | Measure Surface Resistivity                         | EN 61340-5-1/A                            |
| Mold Shrinkage Stand                        | Meausre Mold Shrinkage                              | ASTM D955                                 |
| Moisture Balance                            | Moisture % Analysis                                 | Moisture Analysis                         |
| Spectrophotometer                           | Color Measurement/Yellowness Index                  | CIE Standards                             |
| Color Observation Room                      | Color Observation                                   |                                           |
| Light Booth                                 | Color Observation                                   |                                           |
| Dielectric Strength                         | Electrical Properties                               | ASTM D149, IEC 60243                      |
| Forced Circulating Air Dryers               | Pre-Drying Materials, Elevated RTI                  | UL 746B                                   |

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10,000+

Data centers worldwide (2025)  
*Visual Capitalist / Statista, Nov 2025 —  
 visualcapitalist.com*

200+ GW

Global installed IT capacity (2025 est.)  
*IEA Energy and AI, Apr 2025 —  
 iea.org; Visual Capitalist /  
 IEA — visualcapitalist.com*

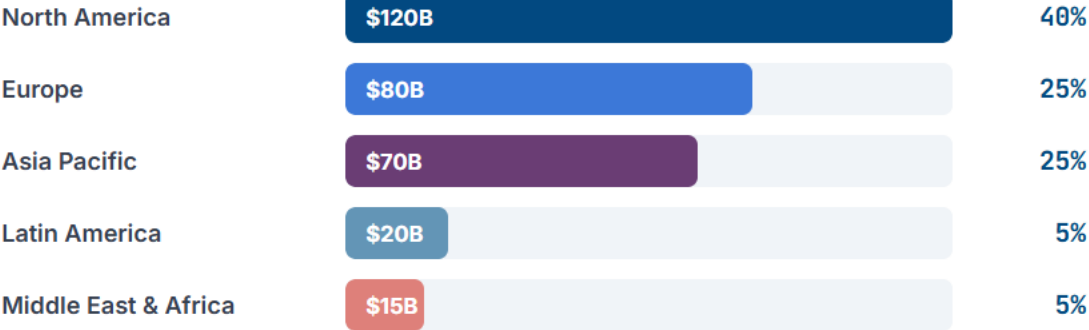
~33% CAGR

AI Data Center capacity demand 2023–2030  
 (midrange)  
*McKinsey AI Power, Oct 2024 —  
 mckinsey.com*

~\$300–387B

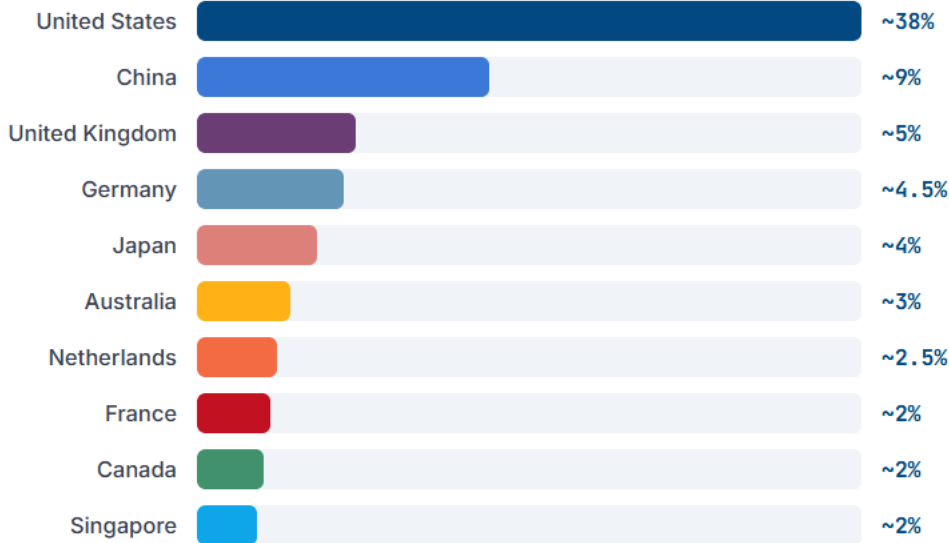
Total global Data Center market (2025, varies by  
 scope)  
*Fortune Business Insights (\$270B, incl. services),  
 Precedence Research (\$387B, full market) —  
 fortunebusinessinsights.com*

DATA CENTERS REGIONAL MARKET SHARE (2025)



*Fortune Business Insights / Precedence Research, 2025 — fortunebusinessinsights.com; precedenceresearch.com*

TOP 10 COUNTRIES BY DATA CENTER INSTALLED CAPACITY



*Statista / Cloudscene, Nov 2025 (facility count basis) — visualcapitalist.com; Cargoson, Jan 2026 — cargoson.com*



Major Hyperscaler Capex Commitments (2025)

Announced capital expenditure plans driving near-term material demand

| COMPANY           | 2025 DATA CENTER CAPEX | KEY FOCUS                         | PRIMARY REGIONS     | AURORA SEGMENT RELEVANCE                                      |
|-------------------|------------------------|-----------------------------------|---------------------|---------------------------------------------------------------|
| Microsoft         | \$80B                  | Azure AI + OpenAI infra           | US, EU, APAC        | PC/ABS compute enclosures, DLC manifolds, busway housings     |
| Google / Alphabet | \$75B                  | TPU clusters, GCP scale           | US, EU, APAC        | Custom server chassis, fiber tray components, cooling shrouds |
| Amazon / AWS      | \$75B                  | Trainium / Inferentia AI chips    | US, EU, Middle East | PC fire-rated panels, ABS network housings, PDU components    |
| Meta              | \$65B                  | LLAMA / AI training clusters      | US, EU              | OCP server frames, liquid cooling trays, cable management     |
| Apple             | \$10B+                 | Private cloud, Apple Intelligence | US, EU              | Precision enclosures, custom chassis, thermal components      |
| Oracle            | \$10B+                 | OCI AI / GPU clusters             | US, APAC, MEA       | Power distribution housings, server PDU bodies                |

Microsoft \$80B: Cargoson/McKinsey Jan 2026; Google \$75B, AWS \$75B, Meta \$65B: company earnings filings Q4 2024 / Q1 2025 — Introl, Feb 2026; Apple, Oracle: public investor communications 2025

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# Data Center Types

## Data Center Definition

A specialized facility that houses computing infrastructure for building, running, and delivering applications and services, along with storing and managing the data associated with them

## Types of Data Centers

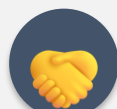


### Enterprise Data Centers

Privately owned and operated facilities for a single organization

- Complete control over infrastructure
- High upfront expenditure
- Customizable

**Power: 500 kW - 5 MW**  
**Small: 100-500 kW**  
**Large: 10-30 MW**  
**Density: 5-15 kW/rack**

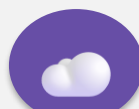


### Colocation Data Centers

Rental space for servers with shared infrastructure facilities

- Shared facilities
- Lower initial investment
- Scalable power

**Power: 2-8 kW/rack**  
**High-density: 15-30 kW**  
**Total: 1-100+ MW**



### Cloud Data Centers

Cloud service providers offering virtualized resources

- Multi-tenant architecture
- On-demand scalability
- Flexible resources

**Power: 5-50 MW**  
**Virtualized infrastructure**  
**Shared resources**  
**Pay-per-use model**



### Hyperscale Data Centers

Massive facilities for tech giants with thousands of servers

- Extreme scale & automation
- Distributed globally
- High redundancy

**Power: 10-100+ MW**  
**Mega facilities: 100+ MW**  
**Extreme density**  
**1000s of servers**



### Edge Data Centers

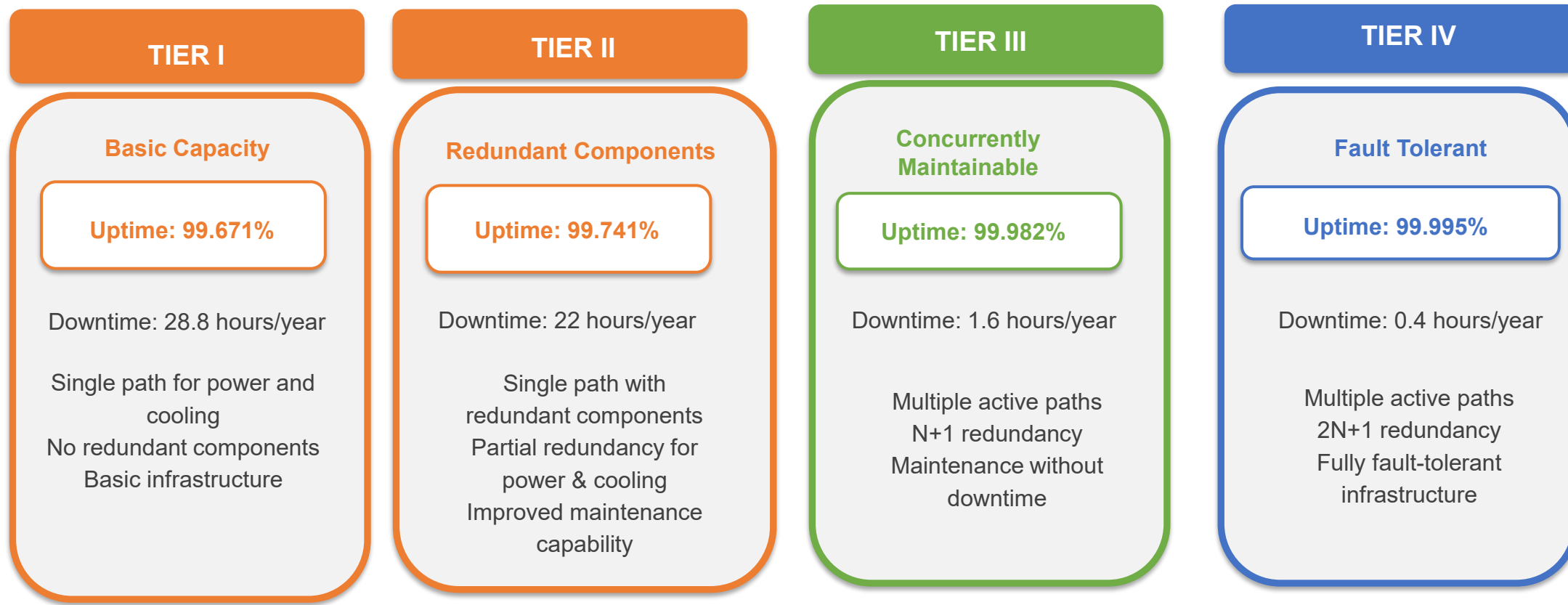
Smaller facilities closer to end-users for low latency

- Distributed architecture
- Low-latency processing
- Local data storage

**Power: 50 kW - 1 MW**  
**Micro: < 50 kW**  
**Regional: 1-5 MW**  
**Density: 3-10 kW/rack**

# Tiers in Data Centers

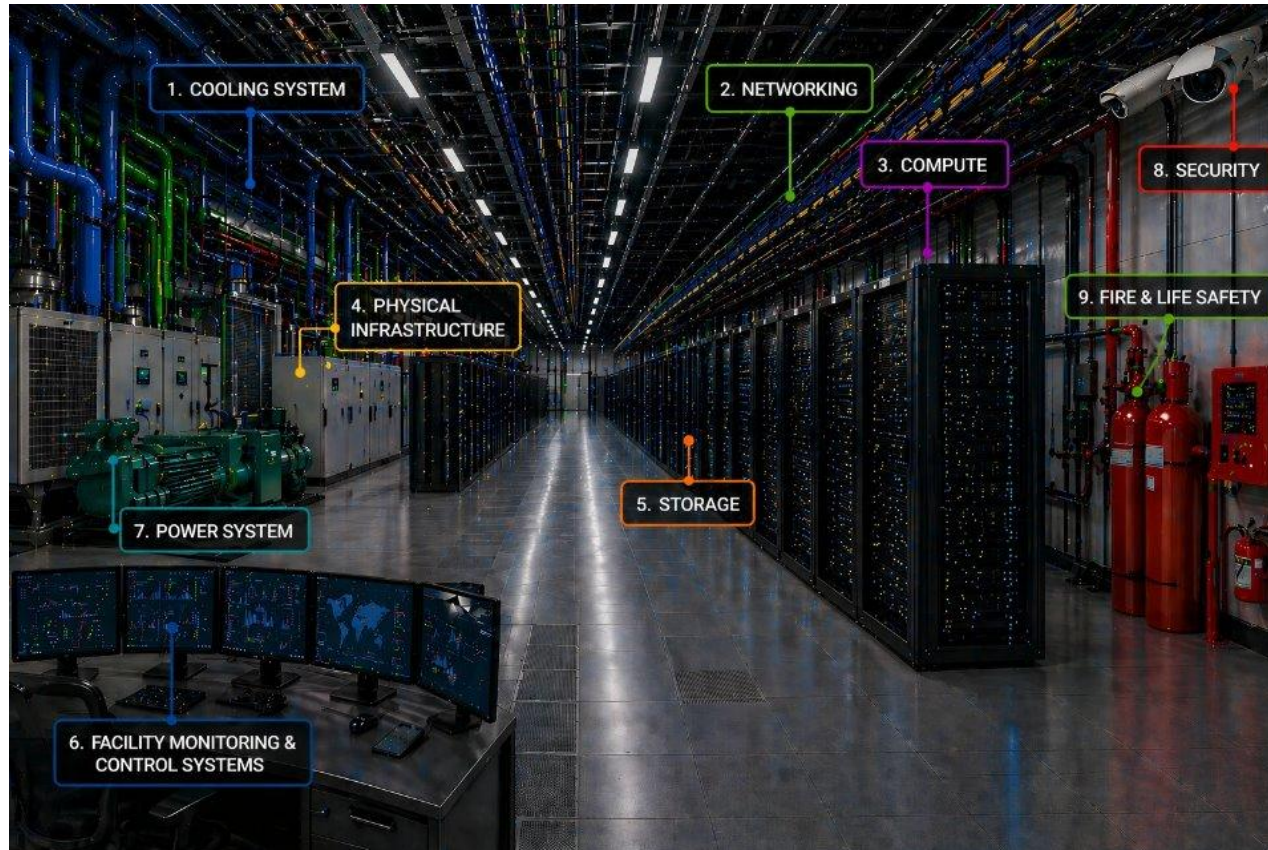
## Classification Standards by Uptime Institute



*Higher tiers provide increased reliability, redundancy, and fault tolerance*

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# Segments in Data Centers



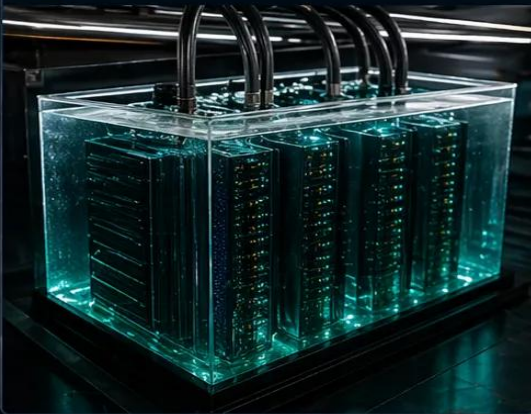
| Segment Name                          | Sample Components                                                                                                |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------|
| Cooling System                        | CRAC/CRAH units, chillers, cooling towers, hot/cold aisle containment, chilled water piping                      |
| Networking                            | Network switches, routers, firewalls, load balancers, cables, transceivers, patch panels, fiber optic components |
| Compute                               | Rack-mounted servers, CPUs & GPUs, Server chassis, bezels, air baffles                                           |
| Physical Infrastructure               | Raised floor panels, server racks & cabinets, cable trays, conduit, drainage systems                             |
| Storage                               | Storage arrays, HDDs, SSDs, NVMe drives                                                                          |
| Facility Monitoring & Control Systems | Building Management System (BMS), DCIM, environmental sensors, building controllers                              |
| Power System                          | UPS systems & batteries, Diesel/gas generators, PDUs, rack power cables                                          |
| Security                              | Access control systems, CCTV cameras, video surveillance, perimeter fencing                                      |
| Fire & Life Safety                    | Smoke detectors, fire alarm panels                                                                               |

Note – we will only be discussing polymers provided by Aurora.



## Products Used in Data Centers: Cooling Systems

**1.1 IMMERSION COOLING SYSTEMS**



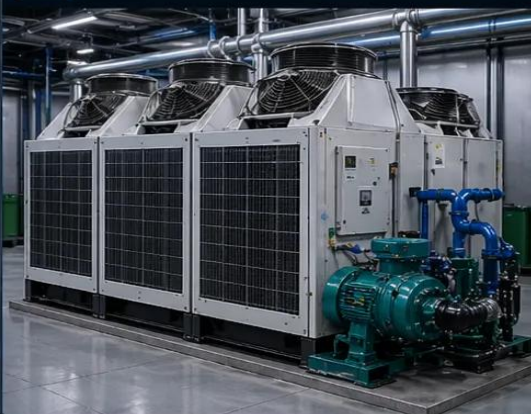
**1.2 LIQUID COOLING & PIPING**



**1.3 COOLING FLUID FILTRATION**



**1.4 AIRSIDE COOLING EQUIPMENT**



**1.5 AISLE CONTAINMENT SYSTEMS**



**1.6 VENTILATION & HVAC SYSTEMS**



### Cooling System Components

Includes CRAC/CRAH units, chillers, cooling towers, aisle containment, and chilled-water piping required to maintain proper thermal conditions.

### Material Requirements

Must support heat management in high-density AI data centers and meet ASHRAE standards for thermal performance, energy efficiency, and long-term reliability.



# Products Used in Data Centers: Cooling Systems

## 1 COOLING SYSTEMS

### 1.1 CHILLED WATER PIPING, HEADERS & VENT DUCTING



Chilled Water Piping



Headers



Vent Ducting

### 1.2 ELEVATED-TEMPERATURE PIPING & CORROSION-RESISTANT VENTILATION SYSTEMS



Elevated-Temperature Piping



Corrosion-Resistant Ventilation Systems

### 1.3 HOT & COLD AISLE CONTAINMENT SYSTEMS



Containment Doors



Aisle Door Frames

### 1.4 COOLING TOWER DRIVES, PUMP ASSEMBLIES & VALVE MECHANISMS



Cooling Tower Drives



Pump Assemblies



Valve Mechanisms

## Key Aurora Polymer Solutions for Cooling Infrastructure:

- **RPVC** – Chilled water piping, headers, and vent ducting infrastructure. Provides excellent chemical resistance, pressure-bearing capability, and long-term dimensional stability for closed-loop cooling systems.
- **CPVC** – Elevated-temperature piping and corrosion-resistant ventilation systems. Engineered to withstand sustained high-temperature exposure while maintaining structural integrity in demanding thermal environments.
- **PC** – Hot and cold aisle containment systems, including containment doors and aisle door frames. Delivers high impact strength, optical clarity, and flame retardancy for critical airflow management components.
- **ABS** – Cooling tower drives, pump assemblies, and valve mechanisms. Offers excellent processability, mechanical rigidity, and moisture resistance for high-reliability mechanical components.

These engineered polymers deliver the chemical resistance, thermal endurance, and mechanical performance required to maintain optimal operating conditions in high-density cooling environments.

## Products Used in Data Centers: Compute Segment



3

### COMPUTE

3.1

#### COMPUTE SERVER & ACCELERATOR ENCLOSURES



3.2

#### COMPUTE SERVER POWER COMPONENTS



### Compute Segment Components

Includes rack-mounted servers, CPUs, GPUs, chassis, bezels, and air baffles that support core data center processing workloads.

### Material Requirements

Materials must provide thermal performance, electrical insulation, mechanical durability, and long-term reliability for continuous data center operation. UL approvals are commonly required in this segment.



## Products Used in Data Centers: Compute Segment



### 3 COMPUTE

#### 3.1 SERVER & ACCELERATOR ENCLOSURES

|                                                                                                                |                                                                                                            |                                                                                                                  |                                                                                                               |
|----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| <br>2U Server Chassis          | <br>4U GPU Server Chassis | <br>Blade Server Module Housing | <br>Drive Backplane Bracket  |
| <br>FPGA Carrier Card Housing | <br>GPU Accelerator Tray | <br>OCP NIC Carrier Bracket    | <br>PCIe Riser Card Bracket |

#### 3.2 SERVER POWER COMPONENTS

|                                                                                                                     |                                                                                                          |                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| <br>Battery Backup Unit (BBU) Tray | <br>Hot-Swap Handle   | <br>Internal DC Power Distribution Board Housing |
| <br>Bay Filler Blank              | <br>Server Faceplate |                                                                                                                                     |



BUILT FOR **PERFORMANCE**. DESIGNED FOR **SCALE**.

 RUGGED & RELIABLE
  MODULAR & FLEXIBLE
  THERMAL OPTIMIZED
  POWER EFFICIENT

### Key Aurora Polymer Solutions for Compute Infrastructure:

- **PC & PC Alloys** – Server chassis, enclosures, covers, housings, and cassette frames. Delivers high impact resistance, dimensional stability, and UL-rated flame retardancy for mission-critical compute hardware.
- **ABS** – Face plates, mounting brackets, and ergonomic handles. Offers excellent surface finish, mechanical strength, and cost-effective manufacturability for high-volume server components.

These engineered polymers are selected for their superior thermal stability, electrical insulation, and structural integrity—meeting the rigorous performance demands of modern compute environments.

## Products Used in Data Centers: Networking



### 2 NETWORKING

#### 2.1 FIBER OPTIC & CONNECTON ASSEMBLIES



#### 2.2 HIGH-SPEED TRANSCEIVER ASSEMBLIES



#### 2.3 NETWORK CONNECTOR & ADAPTER COMPONENTS



#### 2.4 NETWORK CONNECTORS & ADAPTERS



#### 2.5 COPPER CABLING & PATCH PANEL SYSTEMS



### Networking Segment Components

Includes switches, routers, firewalls, load balancers, cables, transceivers, patch panels, and fiber-optic components that enable secure connectivity and data transmission across the data center.

### Material Requirements

Materials must provide durability, structural integrity, and signal integrity to ensure reliable network performance.



## Products Used in Data Centers: Networking



### 2 NETWORKING

#### 2.1 FIBER OPTIC & CONNECTION ASSEMBLIES



Fiber Optic Connection Assemblies



Fiber Optic Cable



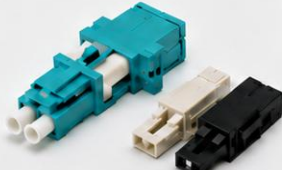
Fiber Optic Cable Assemblies

#### 2.2 HIGH-SPEED TRANSCEIVER ASSEMBLIES



High-Speed Transceiver Assemblies

#### 2.3 NETWORK CONNECTOR & ADAPTER COMPONENTS



Adapters

#### 2.4 NETWORK CONNECTORS & ADAPTERS



High-Density Receptacles



Adapters



Cassettes



Splice Tray

#### 2.5 COPPER CABLING & PATCH PANEL SYSTEMS



Patch Panel Systems



Face Plate



Frame



Housing



Enclosure



Equipment Bezel

### Key Aurora Polymer Solutions for Networking Infrastructure:

- **Flex PVC** – Cables and fiber optic jacketing with excellent flexibility, signal integrity, and flame-retardant properties.
- **PC** – Face plates, frames, housings, and enclosures requiring high impact strength and dimensional precision.
- **ABS** – Equipment bezels with superior surface finish and structural rigidity.
- **PBT** – Splice trays engineered for low moisture absorption and reliable fiber management.
- **PEI** – High-density receptacles, adapters, and optical lenses with exceptional thermal and dielectric performance.
- **PC Alloys** – Fiber optic connection assemblies, patch panel systems, adapters, and cassettes built for long-term durability.

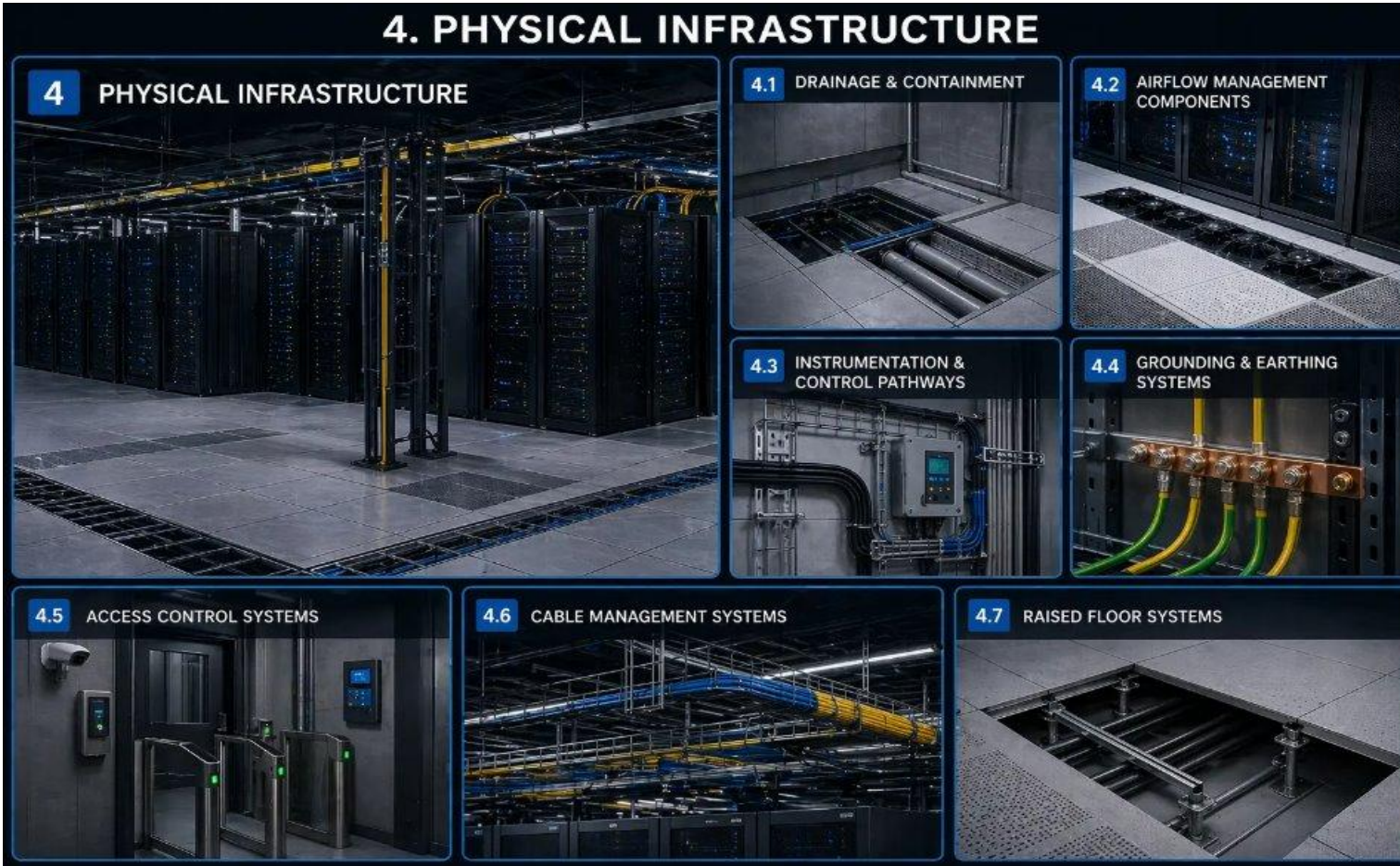
These polymers provide the electrical insulation, durability, and signal integrity essential for reliable, high-bandwidth networking infrastructure.



## Products Used in Data Centers: Physical Infrastructure

### 4. PHYSICAL INFRASTRUCTURE

#### 4 PHYSICAL INFRASTRUCTURE



### Physical Infrastructure Components

Includes the building shell, white-space layout, racks, enclosures, aisle configurations, cable management systems, support rooms, access pathways, security perimeters, raised ESD flooring, cable trays, conduit, drainage systems, and roofing membranes that support facility organization, protection, and operation.

### Material Requirements

Materials must align with TIA-942, BICSI 002, applicable building codes, and tier requirements to ensure compatibility, reliability, and long-term performance.

## Products Used in Data Centers: Physical Infrastructure



### 4. PHYSICAL INFRASTRUCTURE

#### 4.1 CABLE MANAGEMENT SYSTEMS



Conduit



Cable Tray



Junction Box



Duct Cover

#### 4.2 GROUNDING & EARTHING SYSTEMS



Busbar Connectors

#### 4.3 FLOOR & ROOFING SYSTEMS



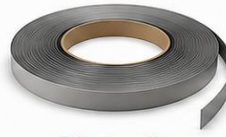
ESD Rigid Tile



ESD Roll Flooring



Roofing Membrane



Edgebanding

#### 4.4 ACCESS CONTROL SYSTEMS



Access Control System Cable

### Key Aurora Polymer Solutions for Physical Infrastructure:

- **Flex PVC** – Roofing membranes, ESD roll flooring, and access control system cables. Provides weather resistance, static dissipation, and long-term flexibility for facility protection.
- **Rigid PVC** – ESD rigid tiles, conduit, cable trays, junction boxes, duct covers, and edge banding. Delivers mechanical strength, flame resistance, and code-compliant performance for cable management systems.
- **PC & PC Alloys** – Busbars requiring high dielectric strength, thermal stability, and reliable electrical insulation for power distribution pathways.

These materials meet TIA-942 and BICSI 002 standards, providing the structural integrity and environmental resistance essential for mission-critical facility infrastructure.



## Products Used in Data Centers: Storage



### 5. STORAGE

#### 5.1 STORAGE/SERVER INTERCONNECTS



#### 5.2 SERVER & STORAGE COMPONENTS



#### 5.3 STORAGE INTERCONNECT COMPONENTS



#### 5.4 STORAGE NETWORKING & CONTROL



#### 5.5 DRIVE CARRIERS & MEDIA HOUSING



#### 5.6 STORAGE ENCLOSURES & CHASSIS



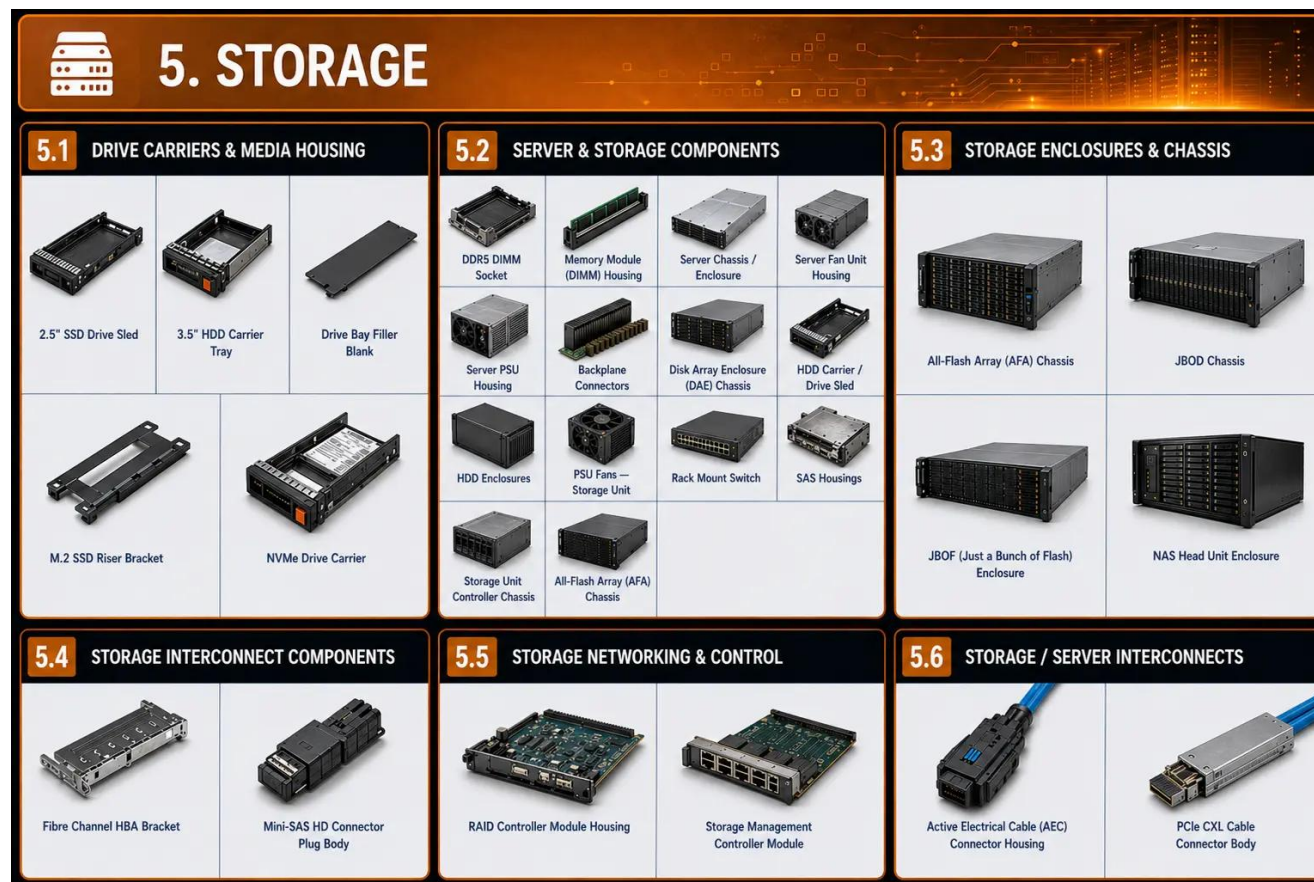
### Storage Systems Components

Includes hard disk drives, solid-state drives, NVMe drives, and storage arrays that provide persistent, high-speed storage for transactional, analytical, and archival workloads.

### Material Requirements

Materials must provide structural integrity, vibration resistance, and thermal stability to ensure reliable performance and long-term durability.

## Products Used in Data Centers: Storage



### Key Aurora Polymer Solutions for Storage Systems:

- **ABS** – Server fan unit housings, PSU housings, and 2.5" SSD drive sleds. Provides vibration dampening, thermal management, and precision-molded fit for high-density storage configurations.
- **PC** – Server chassis and enclosures requiring superior impact resistance, UL-rated flame retardancy, and long-term dimensional stability.
- **Flex PVC** – Active Electrical Cable (AEC) connector housings and PCIe CXL cable connector bodies. Engineered for flexibility, signal integrity, and reliable high-speed data interconnection.

These engineered polymers deliver the strength, thermal resilience, and mechanical precision required for continuous-duty storage infrastructure.



PEOPLE. PARTNERS. POSSIBILITIES.

# Products Used in Data Centers: Facility Monitoring and Control Systems



## 6. FACILITY MONITORING & CONTROL SYSTEMS

### 6.1 INFRASTRUCTURE MANAGEMENT PLATFORMS



BMS Gateway Module Housing



Power Monitoring System Display Panel



### 6.2 SENSOR & CONTROL SYSTEMS



Airflow Sensor



Building Controllers



Environmental Monitoring Unit (EMU) Enclosure



External Power Failure Sensor



Infrared Motion Detection Sensor



Monitoring Sensor



Lighting Fixtures



Magnetic Reed Door And Window Switch



Network Operations Center (NOC) Workstation Enclosure



Power Quality Meter Housing



Room Humidity Sensor



Temperature Sensor



Zone Water Detection Sensor

## Facility Monitoring Systems Components

Includes BMS, DCIM software, environmental sensors, building controllers, power-quality monitoring, remote alarming, supervisory systems, and networked controls that enable real-time facility monitoring.

## Material Requirements

Materials must provide durability and precision to support control-system performance and responsiveness, while meeting local building codes, TIA-942, and BICSI 002.

# Products Used in Data Centers: Facility Monitoring and Control Systems



## 6. FACILITY MONITORING & CONTROL SYSTEMS

### 6.1 INFRASTRUCTURE MANAGEMENT PLATFORMS



BMS Gateway Module Housing



Power Monitoring System Display Panel

### 6.2 SENSOR & CONTROL SYSTEMS



Airflow Sensor



Building Controllers



Environmental Monitoring Unit (EMU) Enclosure



External Power Failure Sensor



Infrared Motion Detection Sensor



Monitoring Sensor



Lighting Fixtures



Magnetic Reed Door And Window Switch



Network Operations Center (NOC) Workstation Enclosure



Power Quality Meter Housing



Room Humidity Sensor



Temperature Sensor



Zone Water Detection Sensor

### Key Aurora Polymer Solutions for Facility Monitoring:

**ABS** – Airflow sensors, BMS gateway module housings, and external power failure sensors. Provides excellent moldability, surface quality, and consistent mechanical performance for precision sensor enclosures.

**PBT** – Airflow sensors, external power failure sensors, and infrared motion detection sensors. Delivers low moisture absorption, chemical resistance, and reliable electrical insulation for continuous environmental monitoring.

**PC & PC/ABS** – Monitoring sensors, temperature sensors, and building controllers. Offers high impact strength, thermal stability, and flame retardancy for mission-critical control system interfaces.

These polymers are engineered to support the precision, durability, and responsiveness demanded by real-time facility intelligence systems.



## Products Used in Data Centers: Power Systems

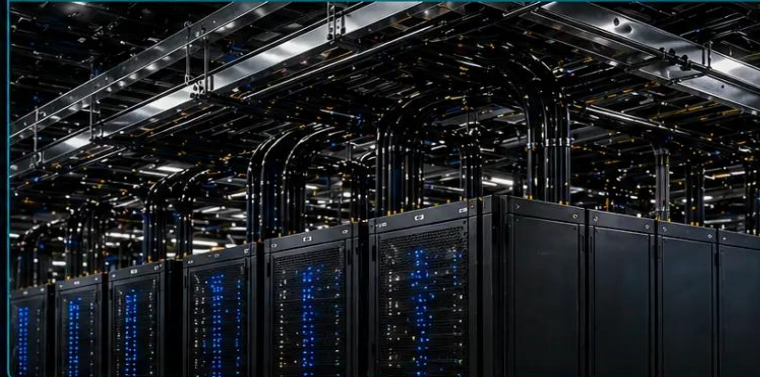


### 7 POWER SYSTEMS

#### 7.1 POWER DISTRIBUTION UNITS (PDUS) EQUIPMENT



#### 7.2 POWER CABLING SYSTEMS



#### 7.3 DATA CABLING



#### 7.4 SECURITY CABLING



### Power System Components

Includes UPS systems, batteries, generators, PDUs, and rack power cables that provide the electrical backbone for continuous data center operation.

### Material Requirements

Materials must comply with NEC, NFPA 70, and UL 891/1558 to ensure safety, reliability, and performance in critical uptime environments.



## Products Used in Data Centers: Power Systems



### 7 POWER SYSTEMS

#### 7.1 DATA CABLING



Backbone Data Cable



Leaf-to-Spine Data Cable



Rack-to-Rack Data Cable



InfiniBand Cable Assembly



Fast Ethernet CAT5E Data Double-Ended Cord Set



Fast Ethernet CAT5E Double-Ended Cord Set, RJ45 Male

#### 7.3 POWER DISTRIBUTION UNITS (PDUS) EQUIPMENT



Automatic Transfer Switches



Closed Transition Transfer Switch Housing



Busway Plug-In Outlet



Circuit Breakers



Electrical Connector Components

#### Key Aurora Polymer Solutions for Power Systems:

**Flex PVC** – Backbone data cables, DAC assemblies, and InfiniBand assemblies. Delivers flexibility, flame retardancy, and signal performance.

**Flex PVC/TPO LSZH** – Backbone, leaf-to-spine, and rack-to-rack data cables. Low smoke, zero halogen formulation with NEC/NFPA compliance for enclosed spaces.

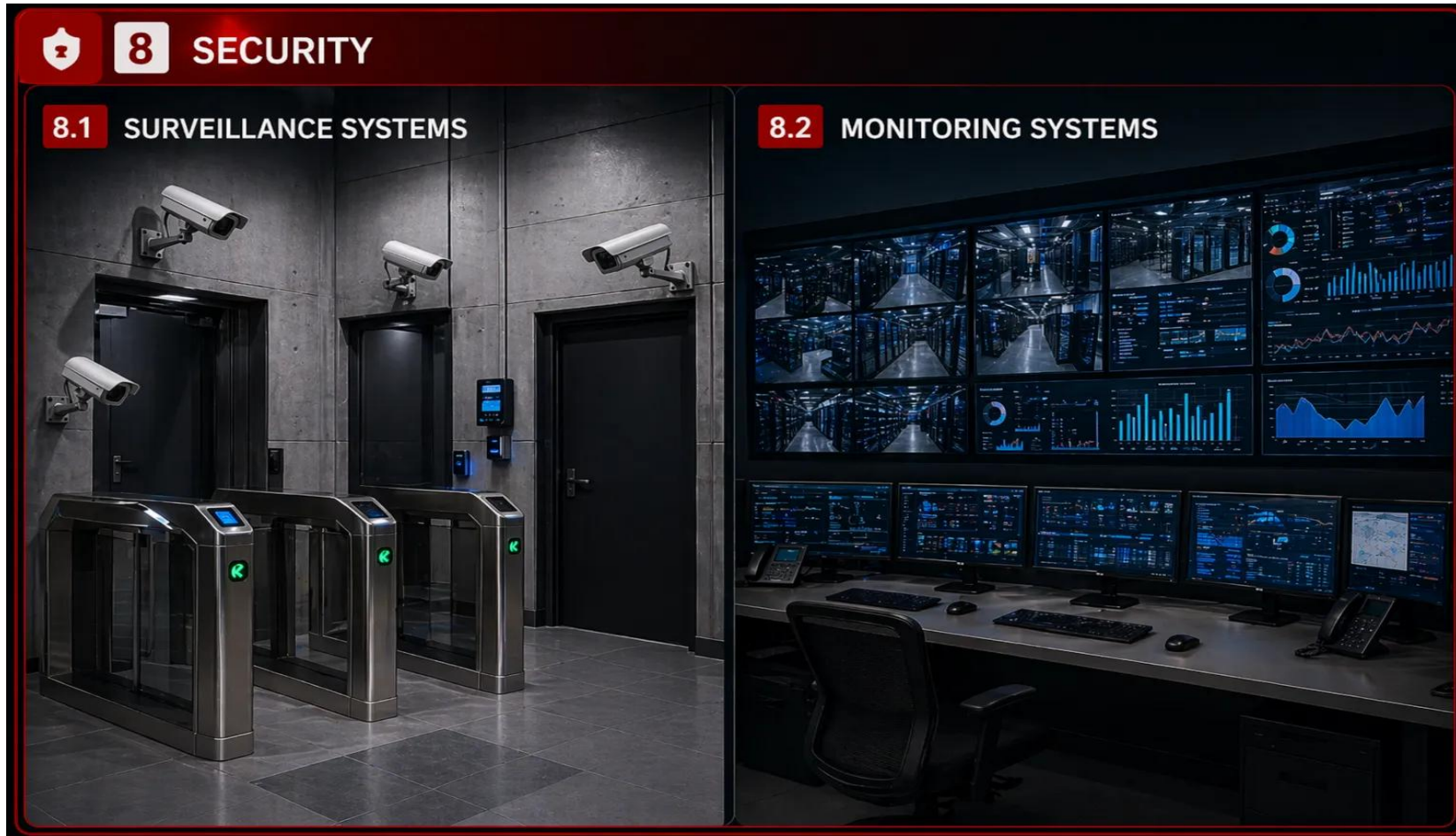
**PC** – Transfer switches, busway outlets, and circuit breakers. UL-rated flame retardancy, high dielectric strength, and arc resistance for power distribution.

**PBT** – Cat5E data cords, cord sets, and RJ45 connectors. Dimensional stability, chemical resistance, and reliable electrical insulation.

**PEI** – Electrical connector components requiring exceptional thermal performance and high-frequency dielectric properties.

These materials are selected for their flame resistance, electrical safety, and long-term reliability—essential where power continuity is non-negotiable.

## Products Used in Data Centers: Security



**Security System Components**  
Includes access control, CCTV, video surveillance, monitoring equipment, and perimeter fencing that protect the data center from unauthorized access.

**Material Requirements**  
Materials must meet project security requirements and TIA-942 guidelines, while providing durability, environmental resistance, and suitable housing performance.

## Products Used in Data Centers: Security

### 8 SECURITY

#### 8.1 SURVEILLANCE SYSTEMS



Camera Junction Box



Camera Mounting Bracket



IP Camera



Rack Monitoring Unit



Video Management Server Enclosure

#### 8.2 MONITORING SYSTEMS



Proximity Card Reader



Biometric System



Face Station

### Key Aurora Polymer Solutions for Security Systems:

**PC** – Proximity card readers, camera junction boxes, and mounting brackets. Delivers high impact resistance, UV stability, and weather resistance for indoor and outdoor deployments.

**ABS** – Biometric system housings and IP camera enclosures. Provides excellent surface finish, dimensional accuracy, and consistent performance across temperature ranges.

**Rigid PVC** – Camera junction boxes and mounting brackets. Offers corrosion resistance, flame retardancy, and cost-effective durability for surveillance infrastructure.

**PBT** – IP camera components requiring low moisture absorption and reliable electrical insulation for continuous outdoor operation.

These materials ensure long-term reliability and environmental resilience across all access control and surveillance applications.



## Products Used in Data Centers: Fire and Life Safety



### 9. FIRE & LIFE SAFETY

#### FIRE DETECTION & SUPPRESSION SYSTEMS



**Fire and Life Safety Components**  
Includes smoke detectors and fire alarm panels that protect personnel and critical assets from fire hazards.

**Material Requirements**  
Materials must comply with NFPA 75 and NFPA 855 and provide flame resistance, low smoke, and reliable performance under extreme conditions. UL 9540 and UL 9540A may also apply for ESS and thermal-runaway fire performance.

## Products Used in Data Centers: Fire and Life Safety

### 9. FIRE & LIFE SAFETY

#### 9.1 FIRE DETECTION & SUPPRESSION SYSTEMS



Fire Alarm Control Panel



Fire Alarm Housing



Heat Detector Housing



Photoelectric Smoke Detectors

#### 9.2 FIRE DETECTION & SUPPRESSION PIPING



Air-Aspirating Smoke Detector Sampling Pipe



Double Containment Piping Above Server Rooms

### Key Aurora Polymer Solutions for Fire & Life Safety:

**CPVC** –air-aspirating smoke detector sampling pipes, and double containment piping. Engineered for elevated-temperature performance, corrosion resistance, and NFPA 75/855 compliance.

**ABS** – Fire alarm control panels and heat detector housings. Provides flame retardancy, mechanical durability, and consistent performance under extreme conditions.

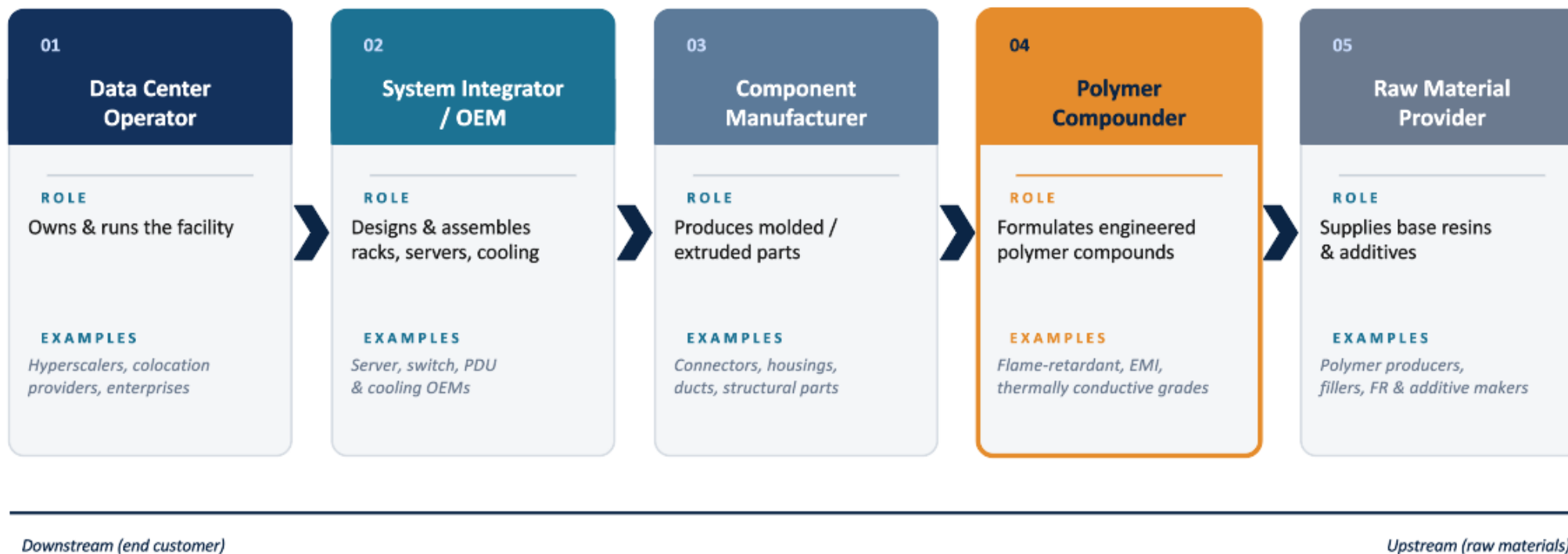
**PC** – Fire alarm housings and photoelectric smoke detectors. Delivers high impact strength, optical clarity for indicator lenses, and UL-rated flame retardancy for life-safety applications.

These materials are selected for their proven fire performance, regulatory compliance, and the long-term reliability required to protect personnel and critical assets.

- Who is Aurora Material Solutions
- Why AI Data Centers
- The Data Center Landscape
- The 9 Infrastructure Segments
- **Aurora's Position in the Value Chain**
- How Aurora Works With the Component Manufacturers



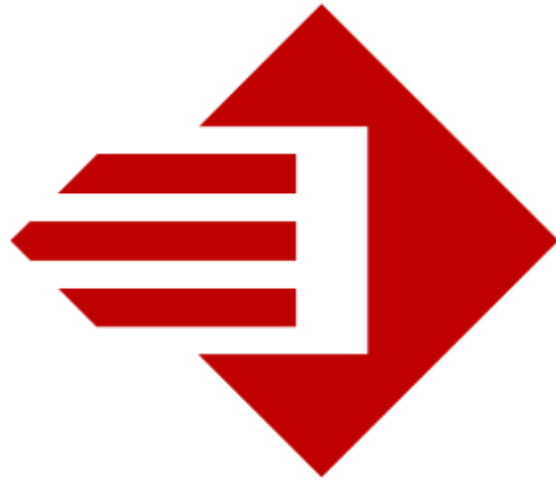
## Value Chain – Where Aurora Fits



Operators set requirements → OEMs translate to component specs → Component manufacturers lock in material grades → Aurora must be designed-in at the component layer

**Early collaboration and alignment are critical to ensure optimal material choice and system performance across the chain.**

- Who is Aurora Material Solutions
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- **How Aurora Works With the Component Manufacturers**



**Intek**  
PLASTICS



# Material Innovation to Manufacturable Components



# Agenda

- The Component Manufacturer's Role
- Why Material Selection Alone Isn't Enough
- Turning Designs into Manufacturable Components
- Case Study: Collaboration in Practice
- Preparing for Next Generation AI Infrastructure
- Q&A





# From Material to Component

1. Aurora Material Solutions helps **define** what **materials can do**.
2. Intek Plastics helps **prove** what those **materials can become**.
3. The component level is where material selection, geometry, processing, cost, and performance come together.





# What We Do

**COMPLETE  
SOLUTIONS**

**Prototyping**

**DFM**

**Tooling Dept./Sourcing**

**Extrusion**

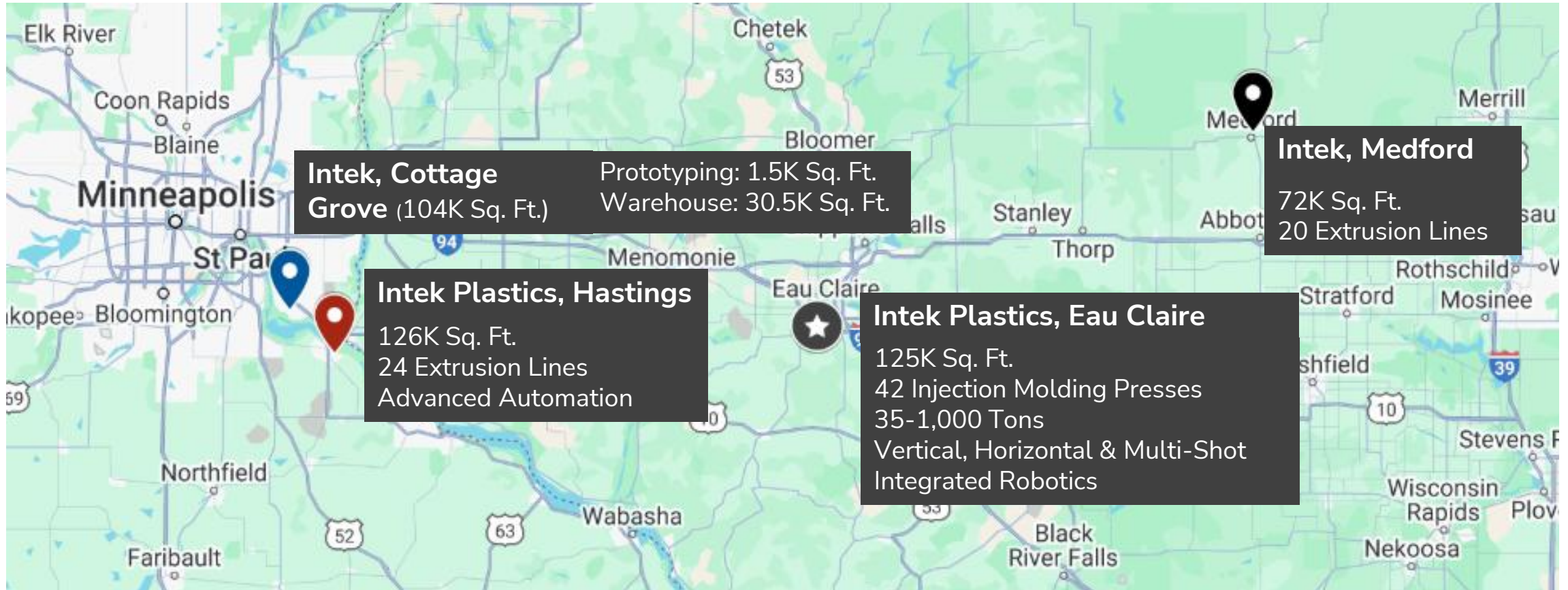
**Injection Molding**

**Secondary/Value Added**

**Inventory Management**



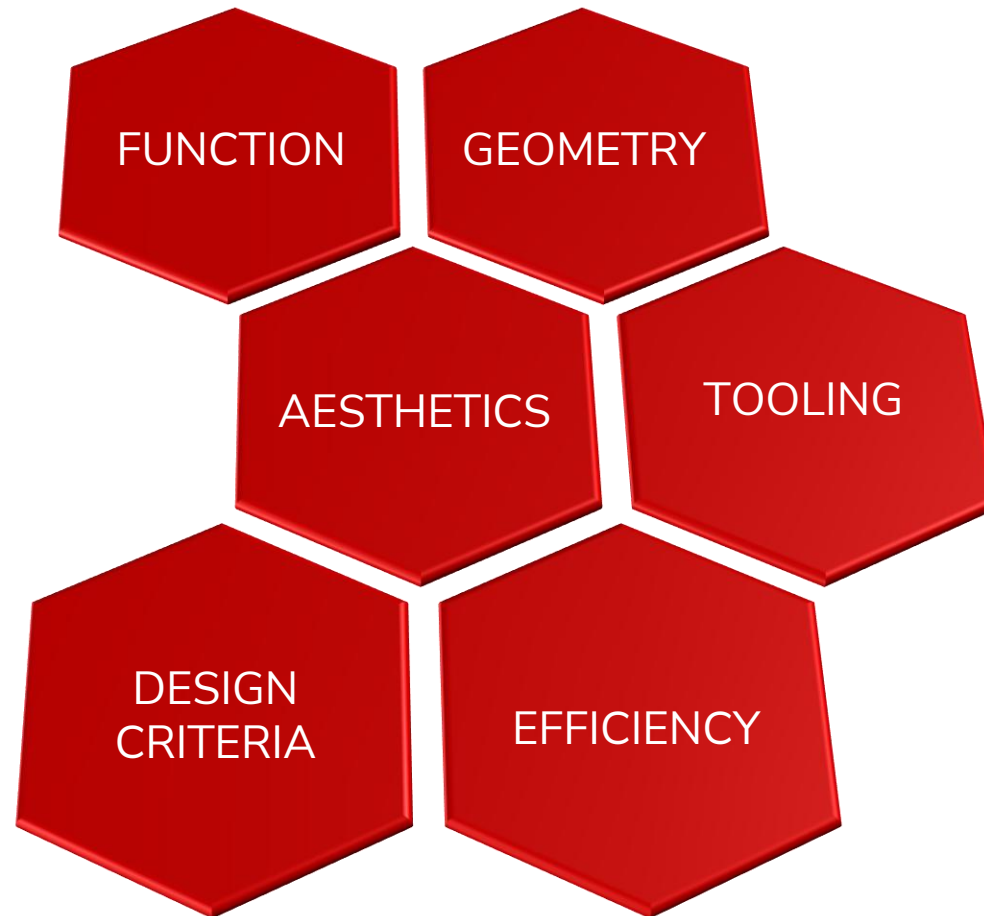
# Locations



# Why Material Data Sheets Do Not Build Components

**85%**

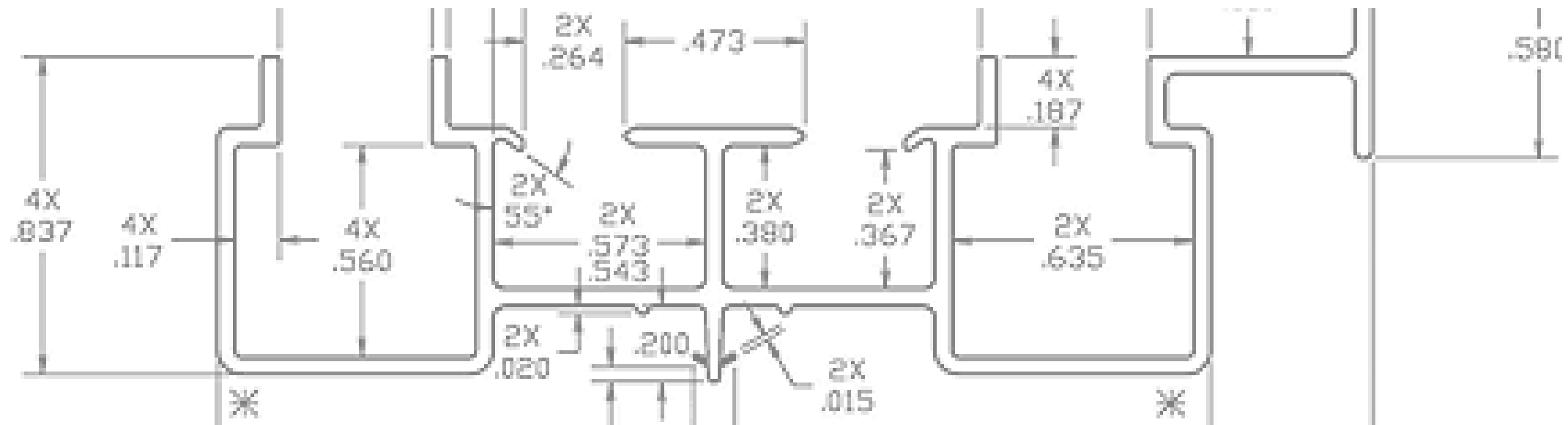
Product Cost  
Determined By  
Design Phase





# Processing Choices Create Performance Outcomes

- ◆ Extrusion: wall variation, cooling, warp, line speed
- ◆ Molding: gate location, sink, voids, draft, flash
- ◆ Material may pass on paper but fail in production



# Every Component Is an Optimization Exercise

- ◆ Stiffness vs impact/flexibility
- ◆ Flame rating vs cost/processability
- ◆ Thermal vs manufacturability
- ◆ Tolerances vs scrap/yield
- ◆ Geometry vs tooling complexity

| MATERIAL GUIDELINE           |           |                |                 |                     |                |                  |
|------------------------------|-----------|----------------|-----------------|---------------------|----------------|------------------|
|                              | Rigidity  | Heat Stability | Impact Strength | Chemical Resistance | Weatherability | Tensile Strength |
| Polypropylene                | Fair      | Fair           | Excellent       | Excellent           | Good           | Fair             |
| Rigid PVC                    | Excellent | Good           | Excellent       | Good                | Excellent      | Good             |
| ABS                          | Good      | Fair           | Good            | Excellent           | Fair           | Fair             |
| CPVC                         | Good      | Good           | Good            | Good                | Excellent      | Good             |
| ASA                          | Good      | Fair           | Good            | Excellent           | Excellent      | Good             |
| Polycarbonate                | Good      | Good           | Excellent       | Excellent           | Fair           | Excellent        |
| High Heat ABS                | Good      | Good           | Good            | Excellent           | Fair           | Good             |
| Acrylic                      | Excellent | Good           | Fair            | Good                | Excellent      | Excellent        |
| Glass Filled Polypropylene   | Excellent | Excellent      | Fair            | Excellent           | Good           | Excellent        |
| Mineral Filled PVC           | Excellent | Excellent      | Fair            | Good                | Good           | Good             |
| Mineral Filled Polypropylene | Good      | Excellent      | Good            | Excellent           | Good           | Fair             |
| Noryl                        | Good      | Excellent      | Good            | Good                | Good           | Excellent        |



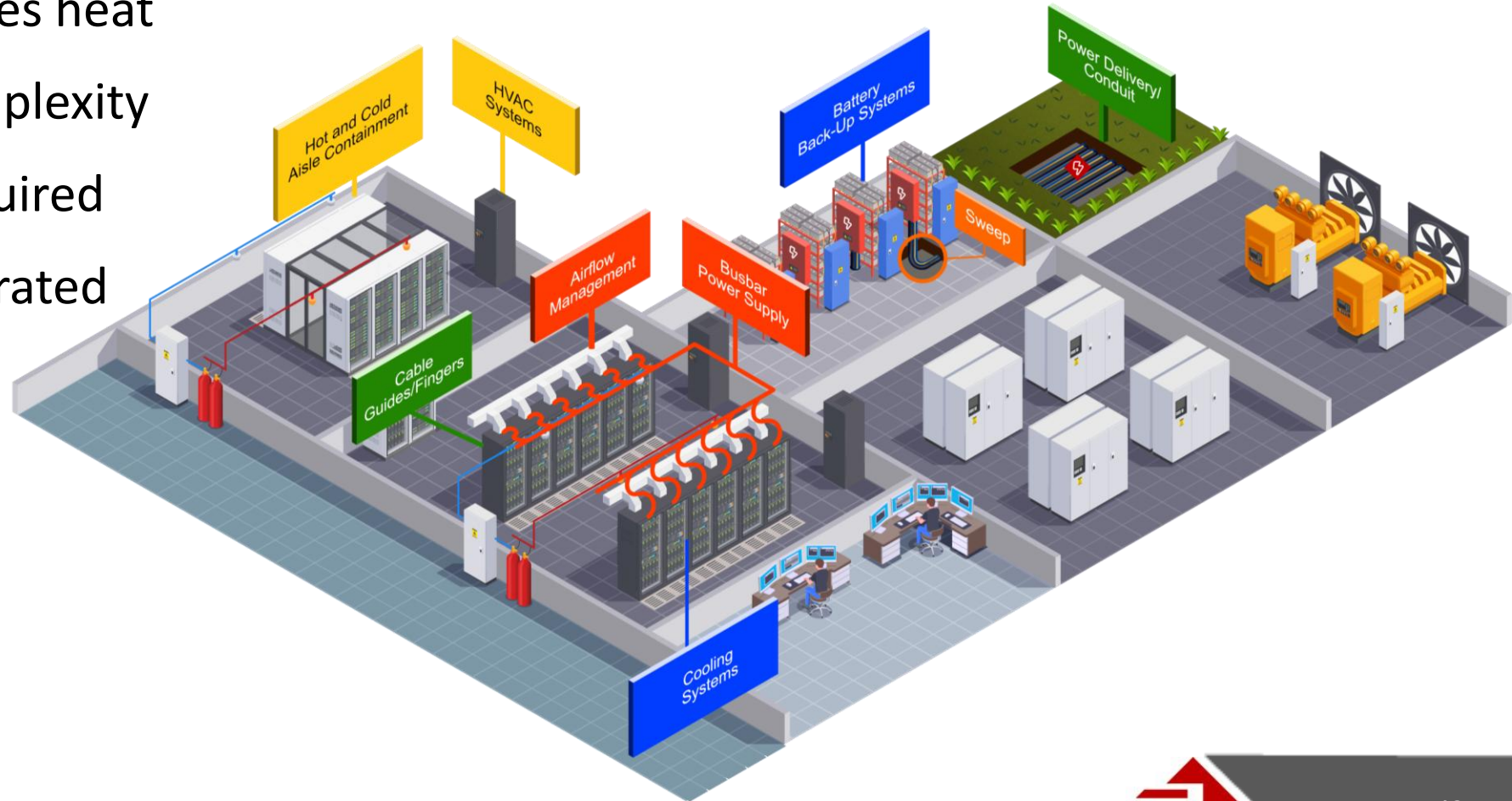
# Case Study: Material, Design, Processing





# AI Infrastructure Raises the Bar

- Higher density increases heat
- More power adds complexity
- Tighter tolerances required
- Success requires integrated collaboration



# Partnering With Intek Plastics

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## Why Intek Plastics

- ◆ Decades of extrusion and injection molding experience
- ◆ Deep material expertise
- ◆ Built for data center environments

## What You Get

- ◆ Complete solutions
- ◆ Engineered plastic components
- ◆ Scalable, custom solutions
- ◆ Reliable long-term performance

# Questions?

Thank you!

