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Welcome & Introduction

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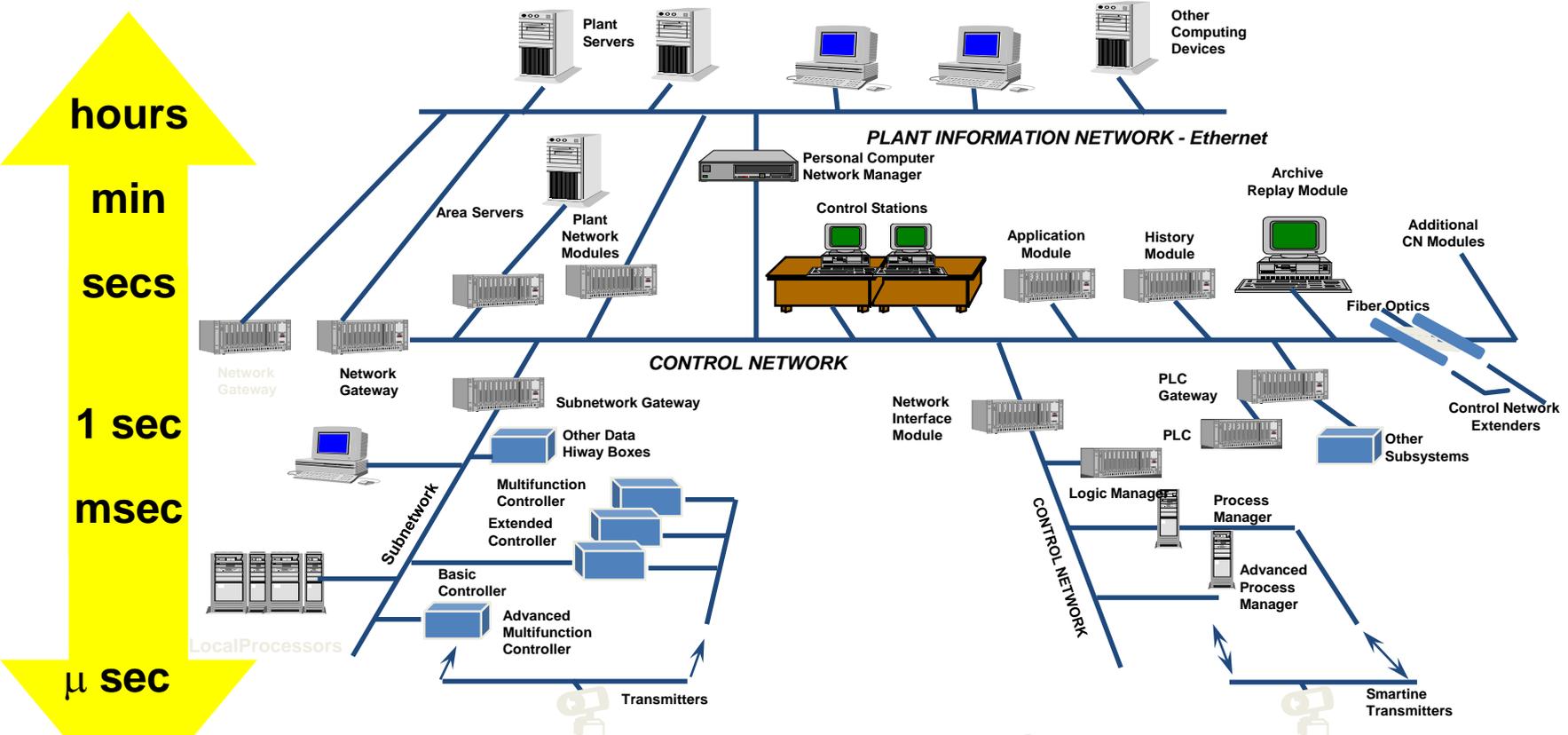W: +1 (480) 483-6644
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Why OPC ?

- ◦ Interoperability
- ◦ Standards : fact or fiction?
- ◦ Where did OPC come from?
- ◦ Four Core Companies
- ◦ OPC Foundation
- ◦ Write a communications driver one time
- ◦ Solve World Hunger?

Thomas J. Burke

The Plant : a Complex Environment with many opportunities for standards for interoperability

- **Asynchronous Processing**
- **Multiple Interfaces**
- **Mission Critical**
- **How To Manage Changes?**

- **Complex Information Flows**
- **Multi-vendor**
- **Proprietary**

Thomas J. Burke

Where did OPC come from?

- 1995 OPC Foundation task force
  - Spin-off from WinSem Group
  - Intellution, Rockwell Software, Fisher Rosemount, opto 22
  - "solve the driver problem"
- Success is measured by level of adoption
- High-value vendor problem solved
- Proven Technology

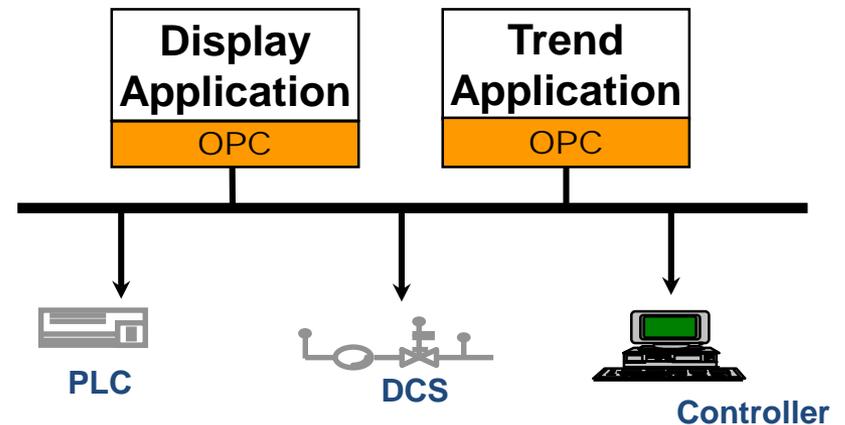Thomas J. Burke

OPC History

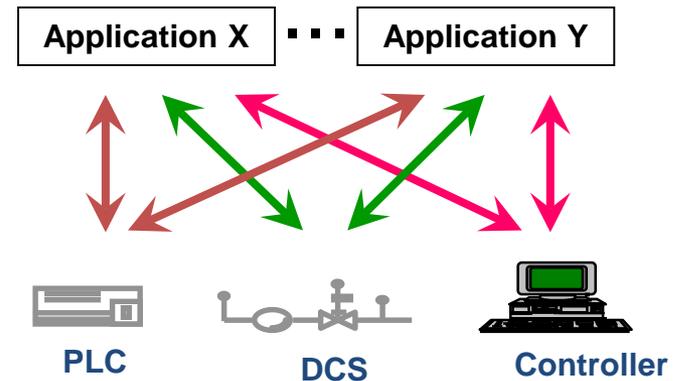- **The Problem**
  - Many different vendors
  - Custom made solutions
  - Proprietary technologies
  - Point-to-point Integration
  - Limited "real-time" information
  - Maintenance nightmare
  - Multiple dependencies
- **Solution**
  - OPC

| Application X | · · · | Application Y |

PLC   DCS   Controller

| Display Application | Trend Application |
| OPC | OPC |

PLC   DCS   Controller

OPC Foundation: Who We Are

Community:

- The OPC Foundation is the world's leading community for interoperability solutions based on OPC specifications that deliver universal connectivity.

Collaboration:

- The mission of this community is to advance the development, adoption and certification of OPC based products through global collaborations.

Compliance:

- The Foundation is the official source for the OPC Certification Program, ensuring that OPC products plug-and-play in real-world application.

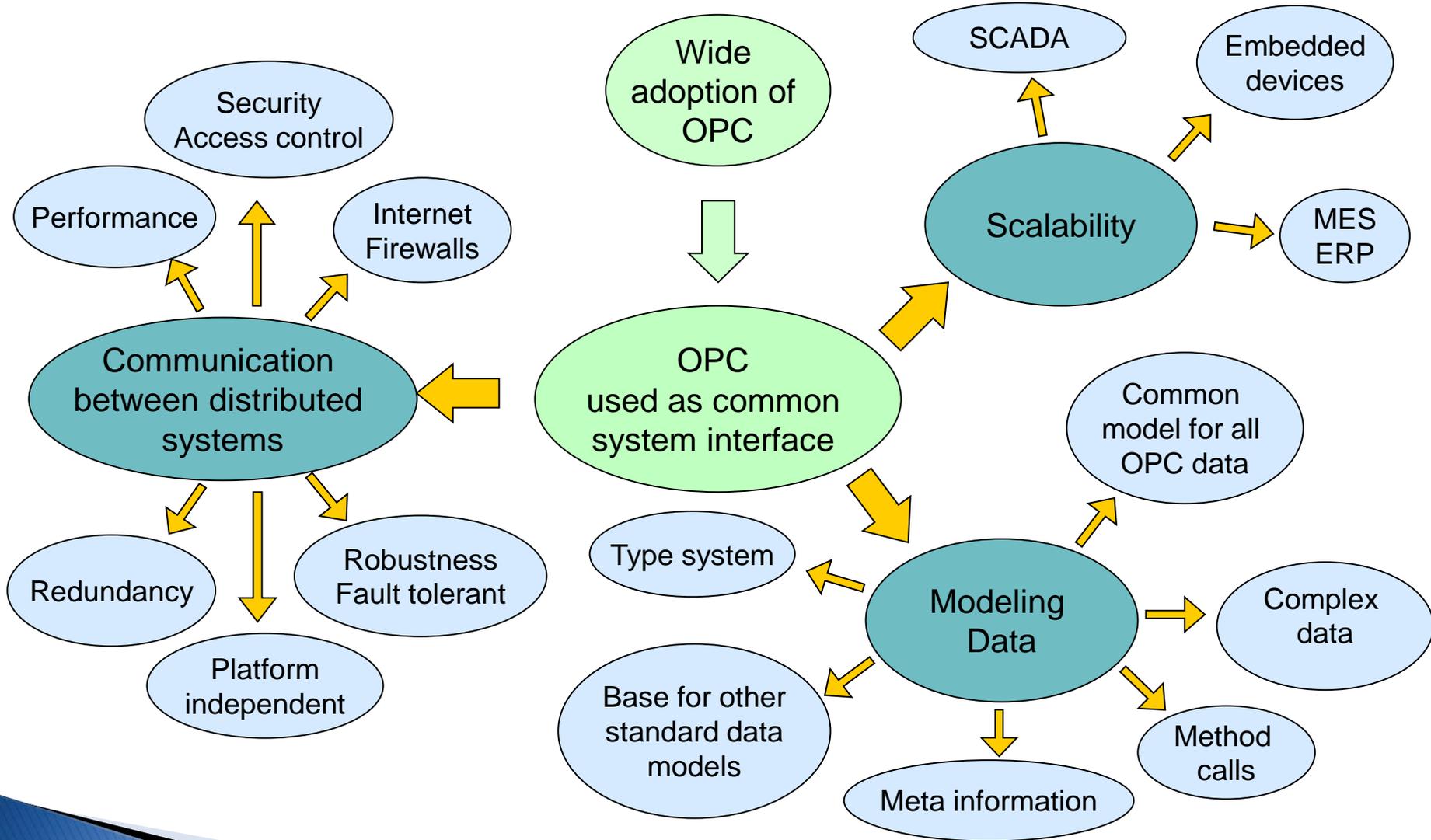OPC FOUNDATION

OPC Foundation Domains

The key markets for OPC technology include

- Industrial Automation
- Building Automation
- Embedded Devices
- Energy Management (Smart Grid)
- Manufacturing Enterprise Management
- M2M
- Cloud-based Computing

Benefits From OPC Adoption

- Vendors were no longer required to maintain extensive device protocol libraries

- High-quality and affordable device-drivers (Servers) emerged

- More specialized Clients emerged

- Developer toolkits emerged for rapid development of custom applications that could also integrate with the OPC infrastructure

- End-users could mix-and-match numerous vendor products to achieve the best overall solution

OPC FOUNDATION

OPC Unified Architecture (OPC- UA)

Security Access control

Performance

Internet Firewalls

Wide adoption of OPC

SCADA

Embedded devices

Scalability

MES ERP

Communication between distributed systems

OPC used as common system interface

Common model for all OPC data

Redundancy

Robustness Fault tolerant

Type system

Modeling Data

Complex data

Platform independent

Base for other standard data models

Method calls

Meta information

Innovation & Interoperability

Level 6 Conceptual Interoperability	
Level 5 Dynamic Interoperability	
Level 4 Pragmatic Interoperability	
Level 3 Semantic Interoperability	
Level 2 Syntactic Interoperability	
Level 1 Technical Interoperability	
Level 0 No Interoperability	

Increasing Capability for Interoperation