



McDonald's *Smart Kitchen* Case Study

Luca Coppadoro
LonMark Sessions 2007

Agenda

- Echelon
- Business Analysis of the Project
 - Why Smart Kitchen?
- Solution Analysis
 - Project drivers
 - The good, the bad and the ugly
- Technical Analysis
- Results
 - Business analysis

Who Are Echelon?

- Founded by Mike Markkula (Intel, Apple)
- CEO: Ken Oshman (Rolm)
- Publicly listed company
- Headquarters: San Jose, California
- Offices: China, France, Germany, Hong Kong, Italy, Japan, South Korea, Netherlands, UK
- Echelon employs about 330 people world-wide
- Open Control Network Infrastructure Company

The Vision

- Virtually every component will have it's own intelligence...

- **Networks Anywhere**

- ..and they will be effectively tied together

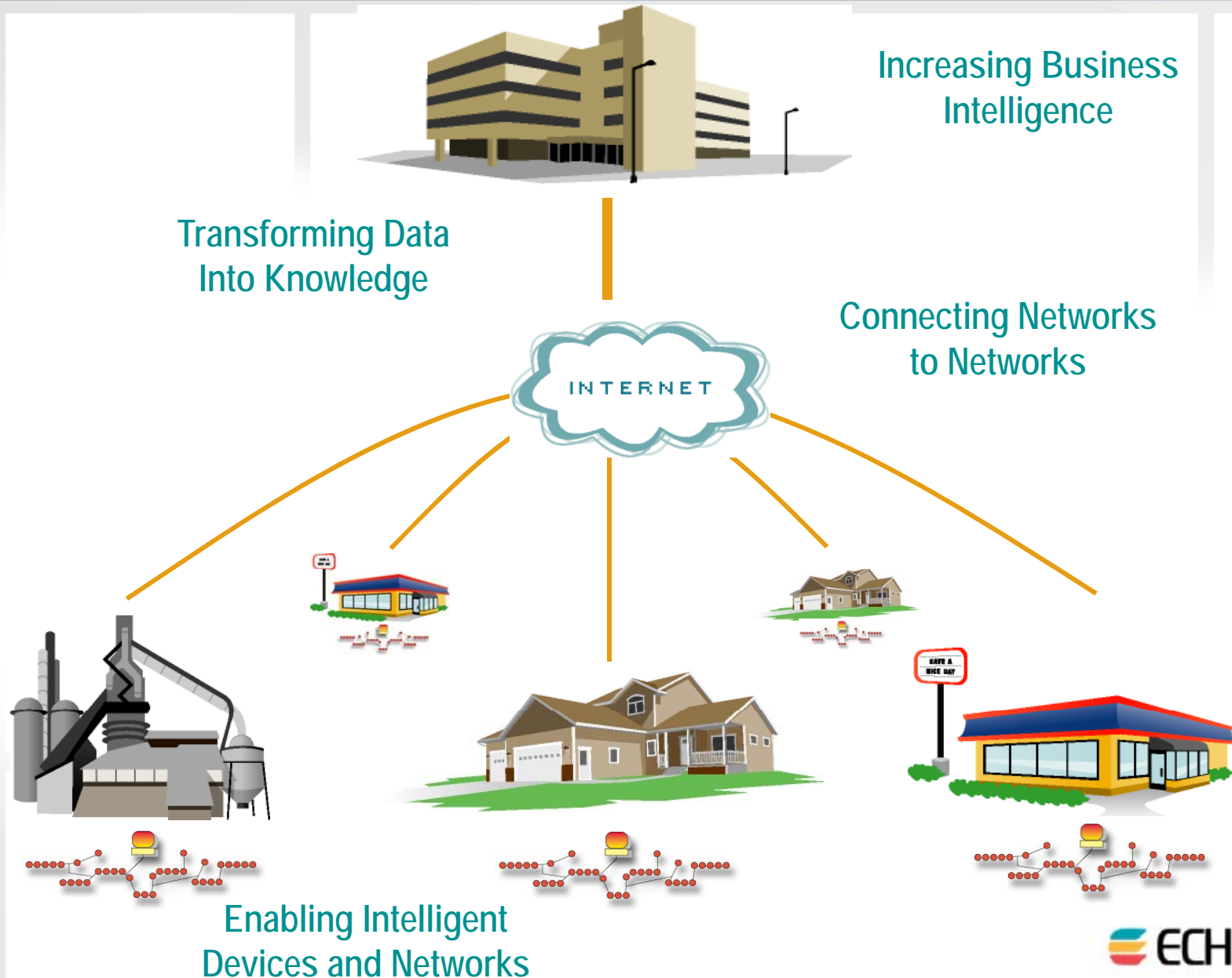
- **Working Together**

- ...to support integrated functional control

- **Based on a Global Standard**

-LonWorks – EN 14908

What is Possible Today



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Background

- Opportunities
 - Over 30,000 Company and Franchisee owned stores
 - Global Presence
 - McDonald's is the leader in innovation in the QSR Market. Other restaurant operators will likely follow the lead of McDonald's

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Project Goals

- Drivers
 - Improve visibility into operations
 - Optimise equipment maintenance
 - Maximise food safety
 - Energy efficiency – the “green” factor

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Solution Analysis

- **Competition**
 - NAFEM – A North American standard in the food equipment industry
 - Wireless – No protocol explicitly defined
- **Echelon solution**
 - Power Line Communication (PL)
 - *i*.Lon 100 XML interface to the enterprise
 - LNS auto-installation

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Solution Analysis

- PL Challenges
 - UL Specifications – leakage current issue had to be overcome
 - Coupling circuit had to support worldwide deployment
 - 3-phase PL interface device
 - Vendor reluctance
 - Perceived lack of bandwidth on PL channel

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Solution Analysis

- PL Winning factors
 - Retrofit solution – no new wires!
 - All business data necessary could be collected
 - Proven Technology
 - Low cost development
 - Highly optimised data communication

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Technical Analysis

- Key technologies used in the project
 - PL Smart Transceivers
 - Retrofit capable
 - Many used as gateways to existing communications
 - Worldwide certified

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Technical Analysis

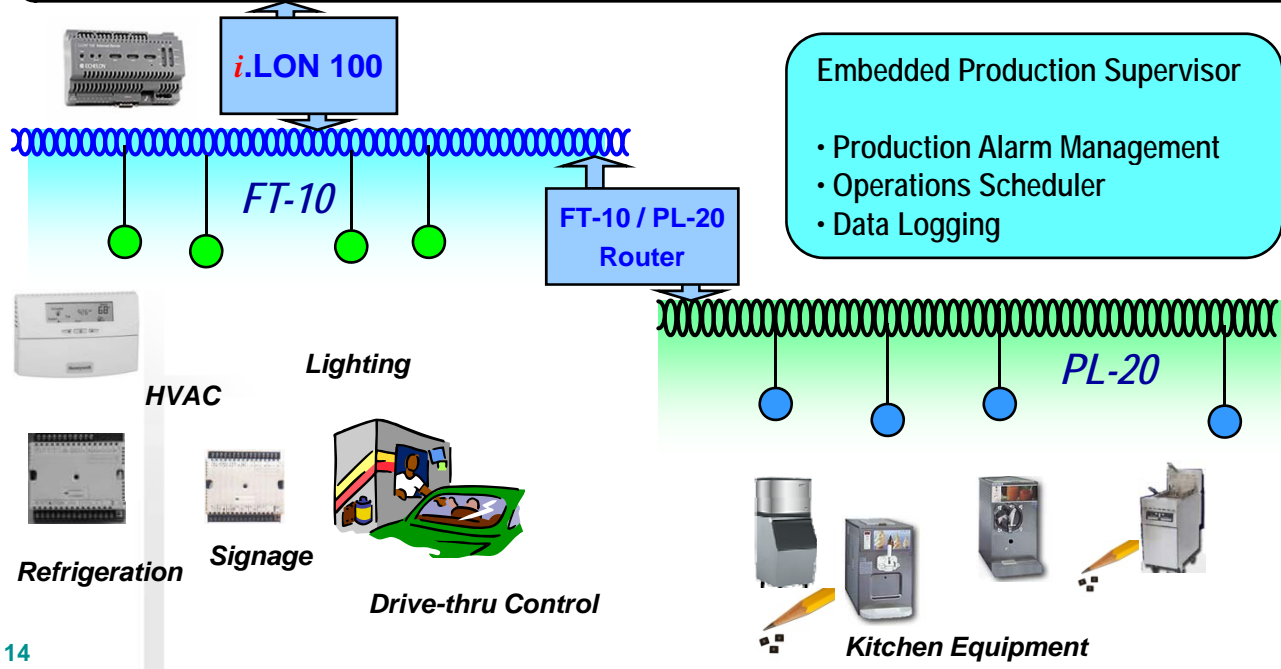
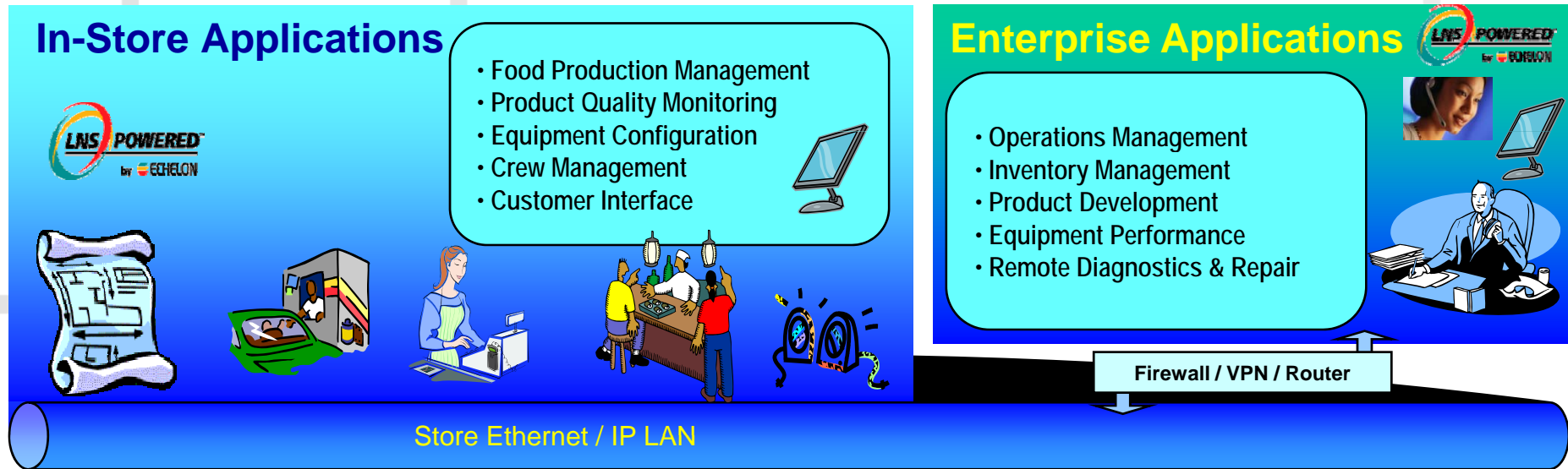
- Key technologies used in the project
 - *i*.Lon 100
 - XML interface for enterprise applications
 - Alarm generation
 - Data-logging

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Technical Analysis

- Key technologies used in the project
 - LNS
 - Automatic installation tool to simplify owner/operator's task
 - Easy interface for data access (PIMS Bridge Program)
 - Support for Plug-ins to create standard equipment configuration screens

McDonald's Smart Kitchen System Architecture



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Business Analysis

- McDonald's 5 areas of business benefit
 - Inventory Management
 - Taking information from the smart equipment
 - Know what is in process
 - Combing this information with historical trends
 - Minimize food waste in the restaurant



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Business Analysis

- McDonald's 5 areas of business benefit
 - Preventative and Faster Maintenance
 - Usage-based preventative maintenance rather than fixed schedule
 - Automatic notification to suppliers of equipment problem
 - Improve first-time-fix percentage
 - Service equipment based upon usage rather than time



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Business Analysis

- McDonald's 5 areas of business benefit
 - Food Safety
 - HACCP Reporting (food and freezer temperatures)
 - This is done manually today if at all
 - Export temperature logs into standard reporting format



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Business Analysis

- McDonald's 5 areas of business benefit
 - Asset Management
 - Better knowledge of where assets are. (Many franchisees have multiple stores among which that they move equipment)
 - Software revision management



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Business Analysis

- McDonald's 5 areas of business benefit
 - Energy Management
 - Certain equipment can be turned off depending upon the time of day and electrical costs.
 - Automatic adjustment of set points
 - Scheduled turn on, not automatic turn on of some equipment
 - Key contributing factor to MacDonald's "green" image



ADITEL

Centro Formación Autorizado (ATC) Echelon

- Cursos de Diseño de Redes LonWorks (cod. 201)
- Cursos de *LonMaker* (cod. 301)
- Cursos ON-SITE
 - Ubicación de curso en función de la demanda
- Entrega de diploma oficial Echelon

Próximo curso

23 .. 26 Octubre (Madrid)

Solicitud de registro:

comercial@aditel-sistemas.com

Registro abierto hasta el día 16



Thank you

Luca Coppadoro
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