Smart Grid Overview

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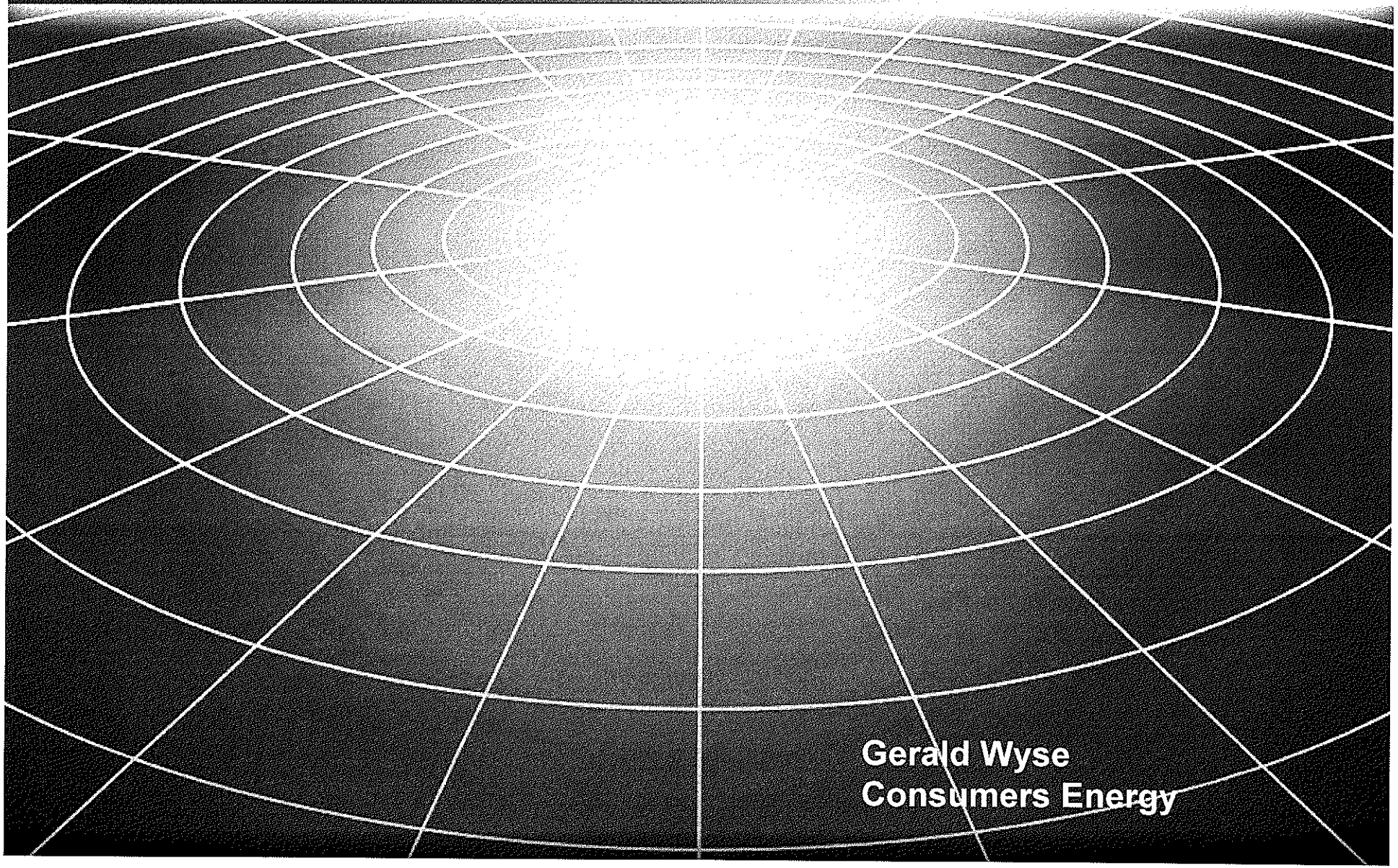

Gerald Wyse
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Smart Grid Overview

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- Defining a Smart Grid
- AMR, AMI & Smart Grid Relationship
- AMI Overview
- Smart Grid Overview
- Characteristics of a Smart Grid
- Evolving to a Smarter Grid

Defining a Smart Grid

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A Smart Grid:

1. Provides CUSTOMERS with the ability to wisely use electricity, electric devices and new services (from intelligent thermostats to plug-in hybrid electric vehicles)

2. Ensures EFFICIENT use of the electric grid (optimizing current assets while integrating emerging technologies such as renewables and storage devices)

3. Enhances RELIABILITY (protecting grid from cyber and natural attacks, increasing power quality and self-healing capabilities)

Vision of the Future: AMR, AMI & Smart Grid

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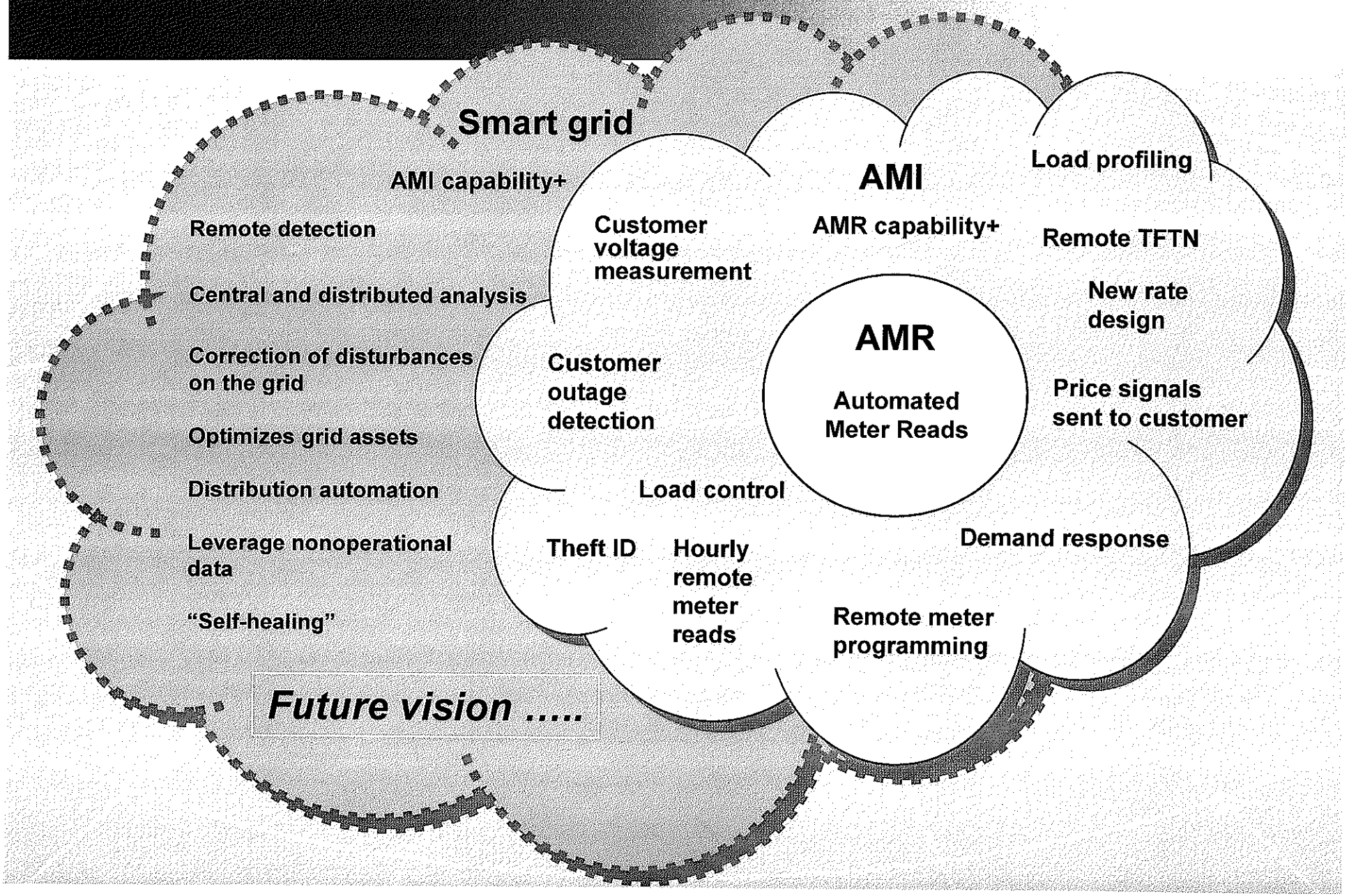

AMI Overview

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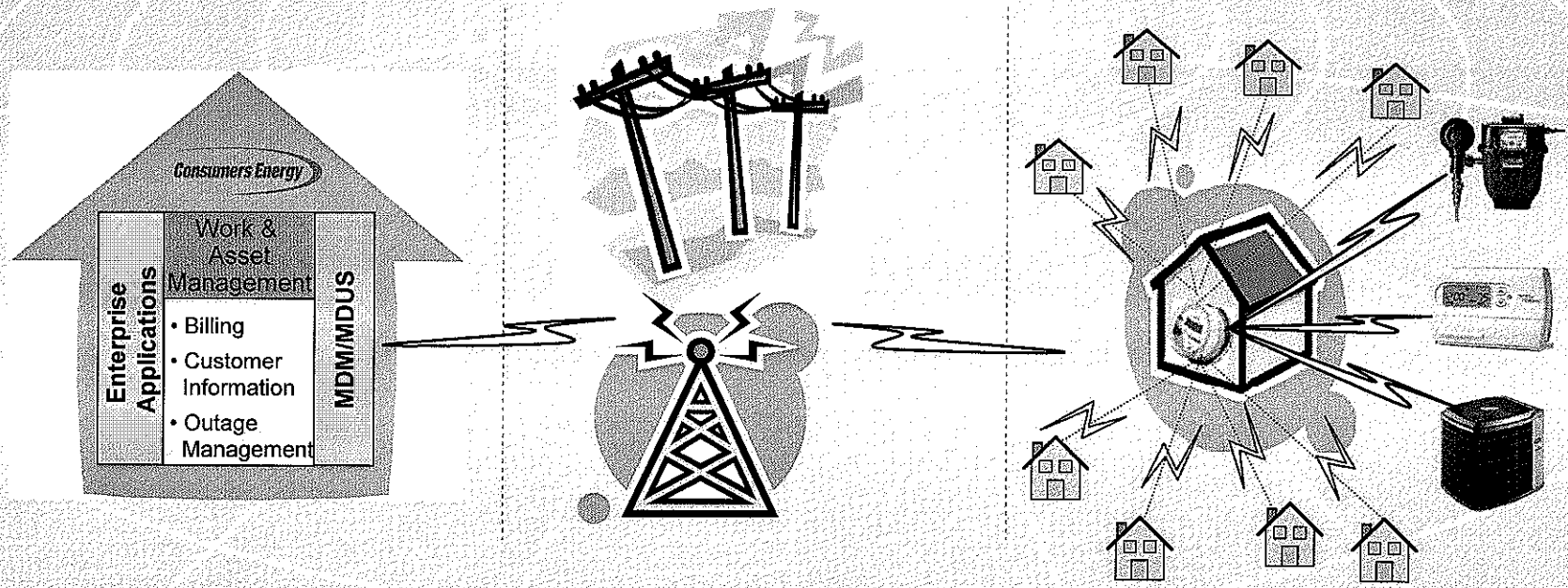
SAP and other core business systems

Data backhaul communications

Field environment communications



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Smart Grid Overview

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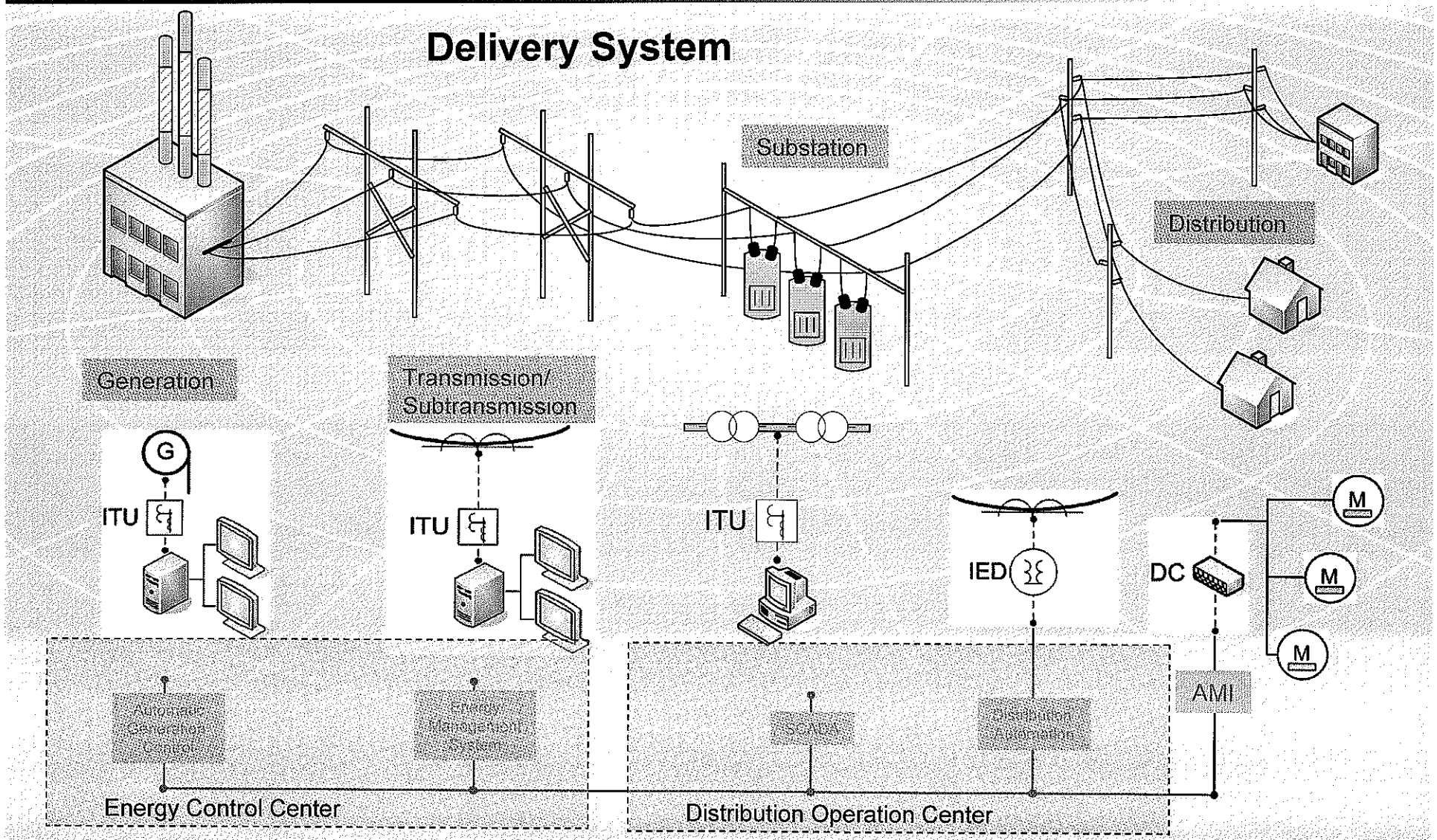

Source : Telvent

Communication and Enterprise Architecture

Characteristics of a Smart Grid

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- Enables active participation by consumers
- Accommodates all generation and storage options
- Enables new products, services and markets
- Provides power quality for the digital economy
- Optimizes assets and operates efficiently
- Anticipates and responds to system disturbances
- Operates resiliently against attack and natural disaster

In Summary

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The Smart Grid is

- More Reliable
- More Secure
- More Economic
- More Efficient
- More Environmentally Friendly
- Safe

Evolving to a Smarter Grid

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- Each utility will be different since each has its own starting point, goals and risk tolerance
- Consumers Energy believes AMI is foundational to the Smart Grid
  - Provides value to the customer and the utility
  - Provides the critical communication and systems for the Smart Grid
- The industry is collaborating to address the many challenges and participating in pilots and demonstrations to understand the value
- Building on these efforts will guide the evolution to the Smarter Grid

Next Steps

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Questions?