The Future of Corporate IT: How Clouds Are Enabling Business Progress

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Safety-Kleen Systems, Inc. Overview

The earth is a closed loop – We built our business on the same model.

Everyday, Safety-Kleen enables thousands of businesses to stay in balance with the environment. We achieve a working harmony of two seemingly opposed missions: protecting the environment while protecting our clients' bottom line. In a thousand work sites, our crews and technicians perform hundreds of highly specialized environmental services that we pioneered and continue to refine. Our role model for real world success is none other than Planet Earth itself, a marvel of efficiency.

We make it safe.
With our extensive closed loop infrastructure, the industrial wastes we handle never leave our hands. The people we put in the field are among the best trained and most knowledgeable in the nuances of compliance regulations. That's why we can confidently extend an industry-best, ironclad guarantee for compliance.

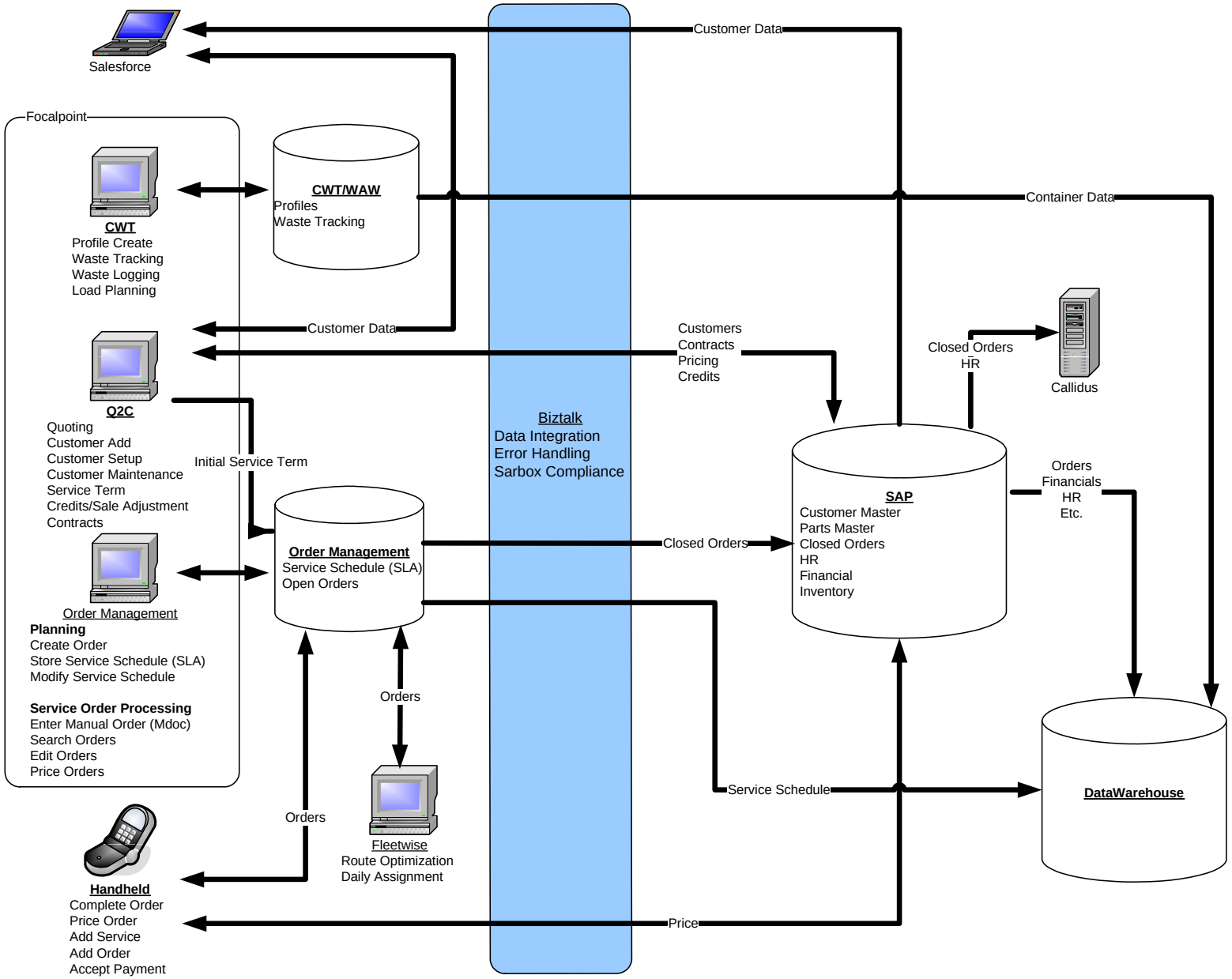
We make it clean.
Safety-Kleen is the leader in developing innovative equipment for specialized cleaning needs. From auto garages to printing presses, from your corner dry cleaner to industrial fabrication plants, we tackle the most difficult cleaning jobs. Along with the dirt and grit, we eliminate the environmental hazards.

We make it pure.
Safety-Kleen owns and operates the largest re-refinery of used oil in North America. Currently, we recycle more than 200 million gallons of used oil annually returning it to the marketplace as clean, reusable motor oil. We are rapidly increasing capacity to meet the booming demand.

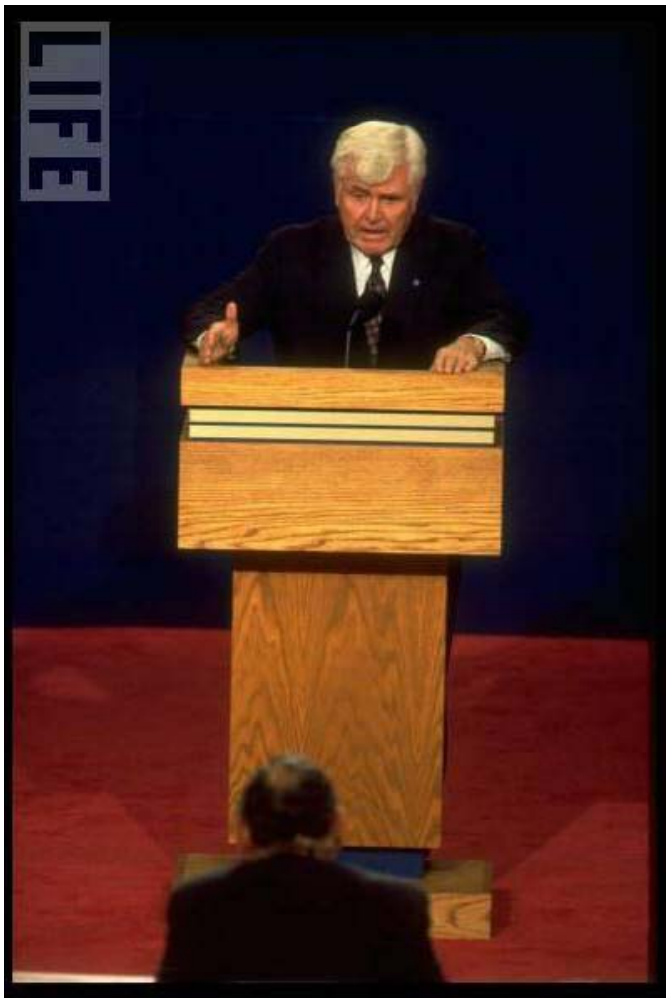
We make green work.

safety-kleen

Safety-Kleen Technology Overview



“Who am I? Why am I here?”



“Who am I? Why am I here?”

Why is Mark here today?

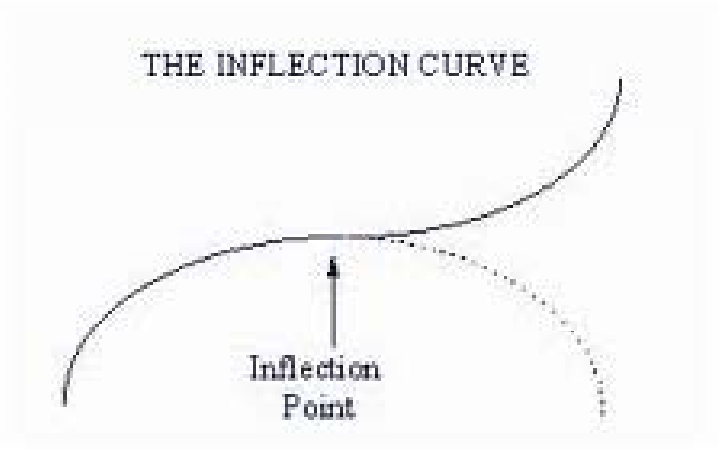
Background Comments

- This keynote speech is not sophisticated or complicated
- This keynote speech is not something that has never been said before
- This keynote speech is not the final word
- This keynote speech is a “work in process”
- This keynote speech is about one CIO’s journey to learn about cloud computing

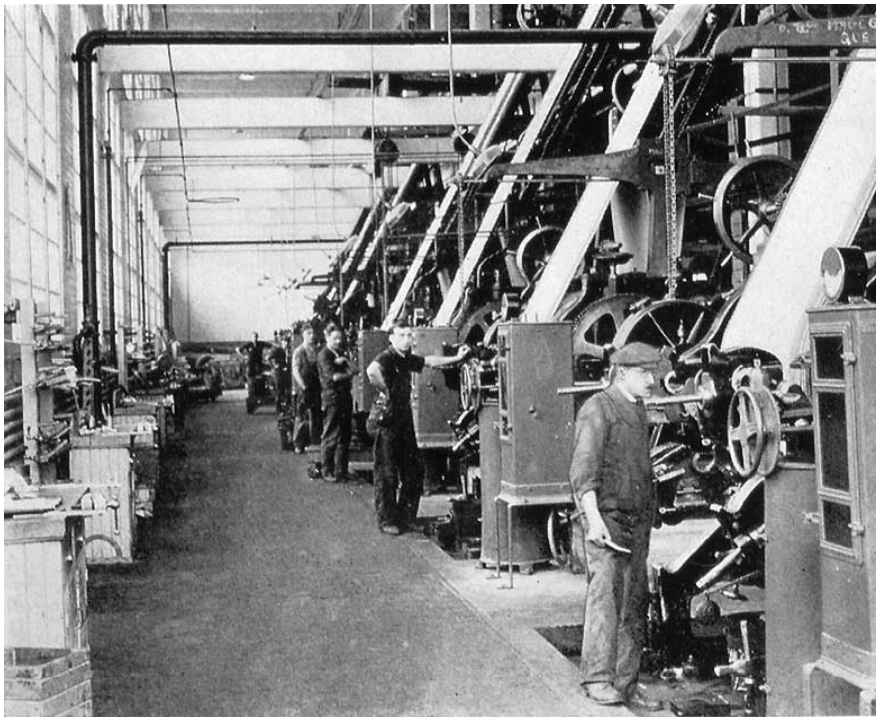
One CIO's Journey

"A new style of computing where IT infrastructure is available as a ubiquitous, easily accessible, and reliable utility service conceptually similar to the telephone or electricity."

We Have Reached An Inflection Point



Electrification of American Manufacturing



THE JOURNAL OF ECONOMIC HISTORY

VOLUME XLIII JUNE 1983 NUMBER 2

From Shafts to Wires: Historical Perspective on Electrification

WARREN D. DEVINE, JR.

The shift from steam to electric power in manufacturing is recounted. Between 1880 and 1930 the production and distribution of mechanical power rapidly evolved from water and steam prime movers with shaft and belt drive systems to electric motors that drove individual machines. The use of electricity reduced the energy required to drive machinery, but more important, enabled industry to obtain greater output per unit of capital and labor input. Reduced energy needs and increased productivity in manufacturing influenced the relationship between energy consumption and gross national product in the first three decades of the twentieth century.

MAJOR changes took place between 1880 and 1930 in the forms of energy that were produced and used in the United States. These changes included switches from coal to oil and natural gas, and the shift from direct use of raw energy forms (coal and water power) to the use of processed energy forms (internal combustion fuel and electricity).

One reason these shifts were important was that natural gas, internal combustion fuel, and electricity could be used with greater thermal efficiency than the fuels they replaced. For the economy as a whole, the general trend was toward increased thermal efficiency in converting primary energy into heat and mechanical work, and this trend was more pronounced in the twentieth century than in the latter part of the nineteenth. This was true despite the fact that the generation of electricity—with large thermal losses—grew much more rapidly than total primary energy consumption. These increases in thermal efficiency

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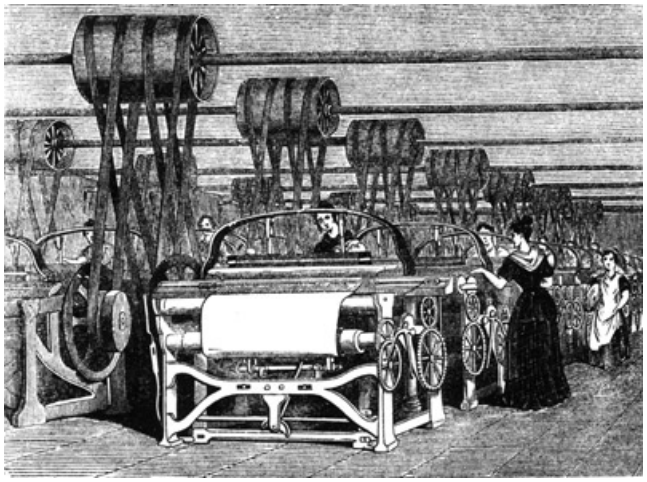
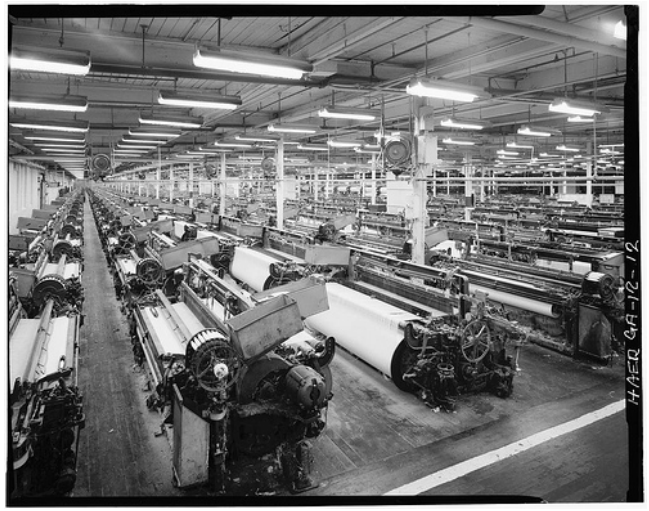
The author is with the Institute for Energy Analysis, Oak Ridge Associated Universities, Oak Ridge, Tennessee 37830. He is grateful to Sam Schurr of the Electric Power Research Institute who initially explored this subject in the late 1950s and who provided overall direction and financial support under EPRI Project SIA81-409; to Ethan Kapstein of Tufts University who made numerous suggestions that helped identify issues, focus effort, and improve presentation; and to Elliot Sivowitch of the Smithsonian Institution who provided access to primary sources in the curator's collection and in the "pit".

Electrification of American Manufacturing





Cloud Computing Skeptics

- Insufficiently secure, robust, and stable
- Good for email & calendaring but not for massive computational tasks
- Not well suited for the mobility worker
- Cloud applications are trivialized versions of desktop & client-server applications
- Cloud computing is lightweight; Desktops are industrial strength
- Cost savings are minimal or non-existent
- Etc.

Our Journey Today

- What do the experts say?
- What are the advantages?
- What are the disadvantages?
- What say you?
- What I am going to do?

What do the experts say?

- 2013

  Gartner estimates the current market for cloud services is $46.4B. By 2013, the market will reach $150B.

Gartner

- 2014

  A reputable technology vendor reports that by 2014, 35% (or over one-third) of global enterprise IT budgets will be spent on cloud services.

- 2015

  Global Industry Analysts, Inc. predicts that open source cloud computing will driving the growth of cloud computing to $222.5B by 2015.

Global Industry Analysts, Inc.
A Worldwide Business Strategy & Market Intelligence Source

What do the experts say?

- A reduction in competitive advantage from Information Technology
- Externalized service delivery
- A diminished stand-alone IT role

CORPORATE EXECUTIVE BOARD

What do the experts say?

- The abstraction of infrastructure
- Resource democratization
- The rise of middleware
- Elasticity
- A dynamic model of consumption and allocation
- More tolerance for innovation and experimentation from the Business

What are the advantages?

- Addresses the shortage of capital
- Enables rapid deployment/speed to market
- Automated upgrades/Full availability of enhancements
- Increases scalability
- Enables business alignment
- Increases user adoption
- Reduces support needs
- Provides for more agile contracting and outsourcing

Federal Employee Evaluation Comments

- “Since my last report, this employee has reached rock-bottom and has started to dig.”
- “He sets low personal standards and then consistently fails to achieve them.”
- “If you see two people talking and one looks bored, he’s the other one.”
- “He’s been working with glue too much.”
- “This young lady has delusions of adequacy.”

What are the disadvantages?

- Trust (security, availability, SLA's, regulatory compliance)
- Cost vs. In-House (is it really cheaper?)
- Performance/Latency
- Risk
- Data Access/Data Protection
- Standards
- Change Management/Integration
- Power/Ownership/Control/Job Security

What say you?

- It's going to be a long transition, but an inexorable one
- There will be skeptics all along the way
- Our business users will expect it
- New industry leaders and IT vendors will emerge
- The role of IT will change

What am I going to do?

- In the area of Strategic Alignment/Aligning with the Business
  - Align with stated and unstated business objectives
  - Build alliances

What am I going to do?

- In the area of Architecture/Investing in Architecture
  - Revise our future information architecture
  - Invest in WAN optimization
  - Add WAN headcount
  - Implement ITIL v3-based solutions
  - Build out a private cloud
  - Implement agile development methodology

What am I going to do?

- In the area of Vendor Management/Picking Vendors
  - Pick survivors/winners
  - Pick vendors with the same sense of urgency
  - Pick vendors that you can trust
  - Pick vendors that are in tune with us
  - Pick vendors that continuously improve
  - Pick vendors that strive for mutual success

What am I going to do?

- In the area of Risk Management/Minimizing Risks
  - Understand privacy restrictions
  - Validate portability/interoperability
  - Obtain/Review/Test disaster recovery and business continuity plans
  - Mandate third party reviews
  - Understand their financial viability
  - Set aside a portion of the savings for increased audit activities

What am I going to do?

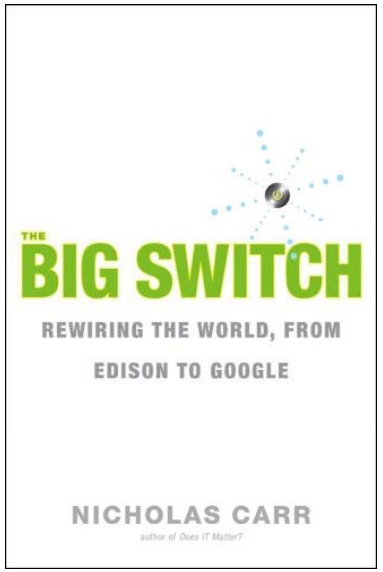
- In the area of Contracting/Changing Contracts
  - Shorten contract terms
  - Grandfather flat rate pricing
  - Plan for an expected and unexpected contract termination
  - Plan for an orderly return of our assets
  - Add a clear expectation of their response to legal information requests
  - Understand secondary uses of data
  - Include provisions for electronic discovery
  - Understand the implications of new regulations (e.g., ITAR)

What am I going to do?

- In the area of Self Improvement/Investing in Self
  - Read extensively
  - Attend seminars/conferences
  - Meet with industry leaders
  - Meet with vendor experts
  - Build my non-IT skills
  - Take responsibility for my own future/development

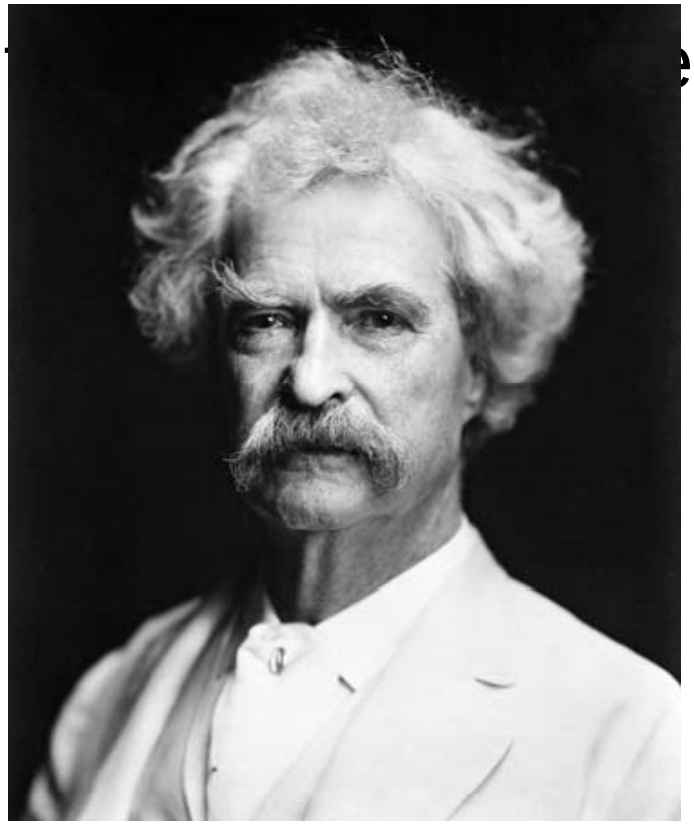
Conclusion

- We are in the midst of another epochal transformation, and it's following a similar course.
- Computing is turning into a utility, and once again the economic equations that determine the way we work and live are being rewritten.
- Technology shapes economics, and economics shapes society.
- Business computing is in the process of moving to the cloud just as surely as factories moved to electrification about a hundred years ago.



Conclusion

“The past



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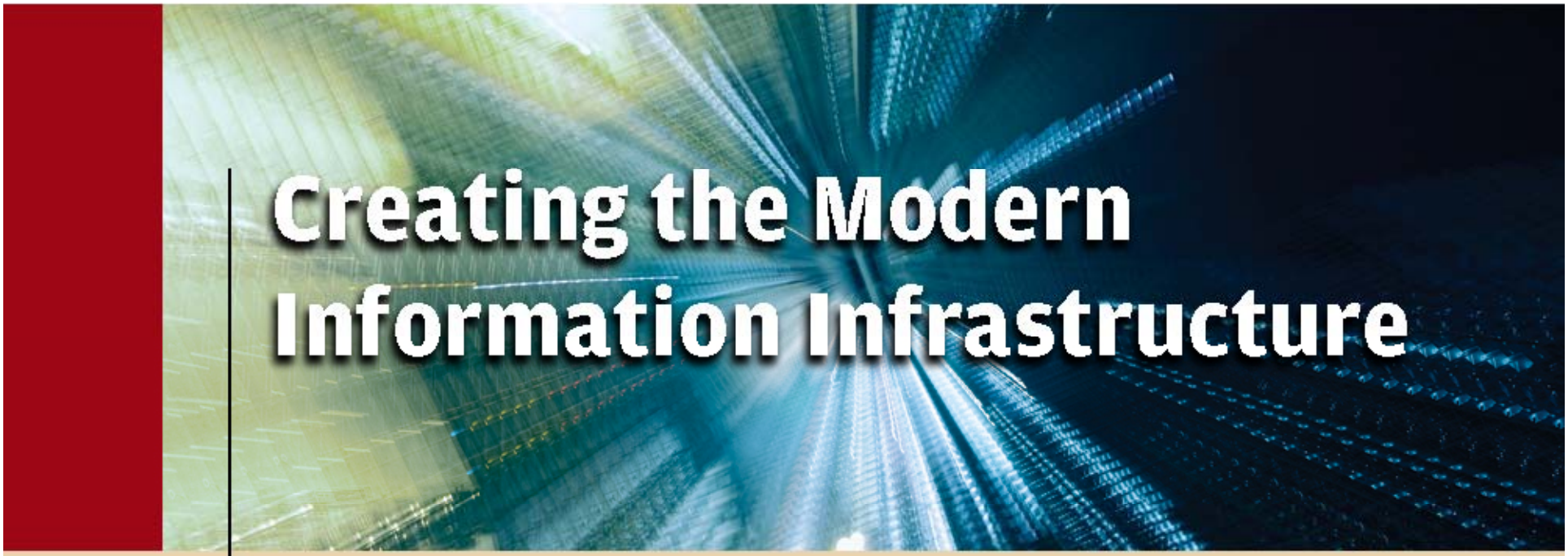

Creating the Modern Information Infrastructure

FALL 2010