An Unaffliated View of Electronic Commerce

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Brandenburg Consulting

- Networked applications
  - Planning & design
  - Interoperability, security, operations
  - Internet service provider setup & training
  - Design audits & technology assessments
- Background
  - Internet, OSI, net mgmt, MCI Mail development
  - Standards - email, transport, commerce
  - Chair, Silicon Valley - Public Access Link

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Overview

- The Internet for commerce?
- Some architectural issues
- Giving payments its due
- Standards & research

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Internet for commerce?

- Strong pressures emerging
  - Businesses now online
  - Reduced access costs
  - Global “reach”

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Boldly go...

Where no public network has gone before...

- Commerce changes things

¤Internet was
- Small (sort of)
- Friendly (very)
- Open
- Casual

¤Internet has become
- Huge (every body/where)
- Competitive
- Closed and open
- Casual and formal

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A global Internet

- ¤ Scaling
  - A chicken in every pot!
- ¤ Security
  - Military vs. commercial vs. personal
- ¤ Management
  - Interconnection ≠ interoperability
  - Sometimes ≠ always

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What is business?

- R&D
  - Search, browse
  - Test
  - Coordinate
- Support
  - Discuss
  - Info push
- Marketing
  - Targeted info push
  - Survey
- Sales
  - Negotiate
  - Order, bill, pay
  - Deliver

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To be on the Internet

- Full *(core)*
  - Permanent, visible, native
- Direct *(consumer)*
  - Native
- Client
  - User runs Internet applications
- Mediated
  - Provider runs applications for user
- Messaging
  - Surprisingly useful

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Styles of use

- Receiver pull
  - Interactive sessions
  - Individual, foreground refinement
- Sender push
  - Messaging
  - Bulk, background distribution

(Mark Smith, Intel)

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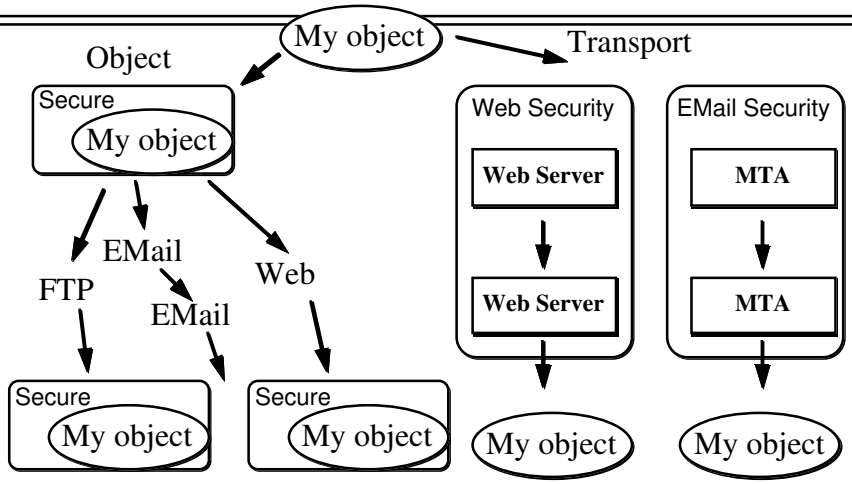
Core vs. edges...



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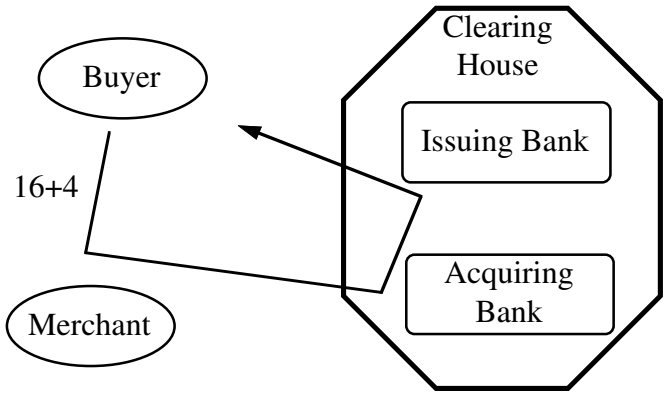
Payment system model



(M. Rose, FV)

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Payment system issues

- Transaction category "card not present"
  - For all bankcard approaches for Internet
- Issues
  - Knowing buyer/merchant authorized
  - Avoiding third-party interception
  - Interchange, assessment, fees
  - Retrievals, chargebacks, etc.
    - Risk management

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Payment system efforts

Commercenet	`www.commerce.net`
CyberCash	`www.cybercash.com`
DigiCash	`www.digicash.com`
First Virtual Holdings	`www.fv.com`
Open Market	`www.openmarket.com`
Mastercard	`www.mastercard.com`
NetMarket	`www.netmarket.com`
Netscape	`www.netscape.com`
Visa	`www.visa.com`

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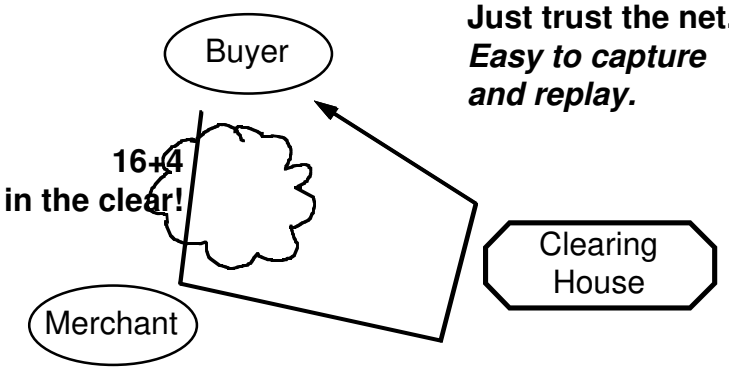
Scheme "Clear"



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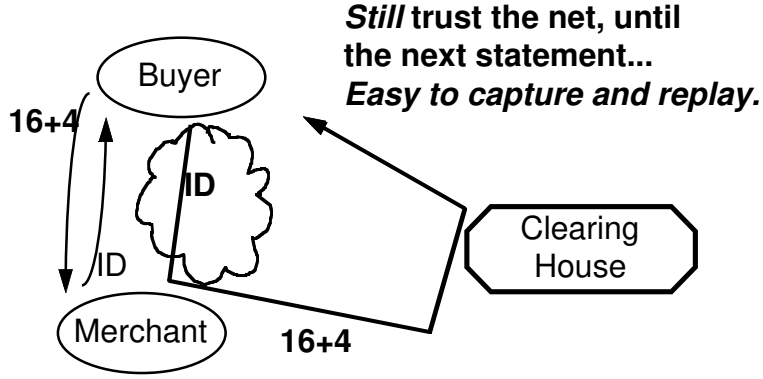
Scheme "ID"



***Still* trust the net, until the next statement...**
Easy to capture and replay.

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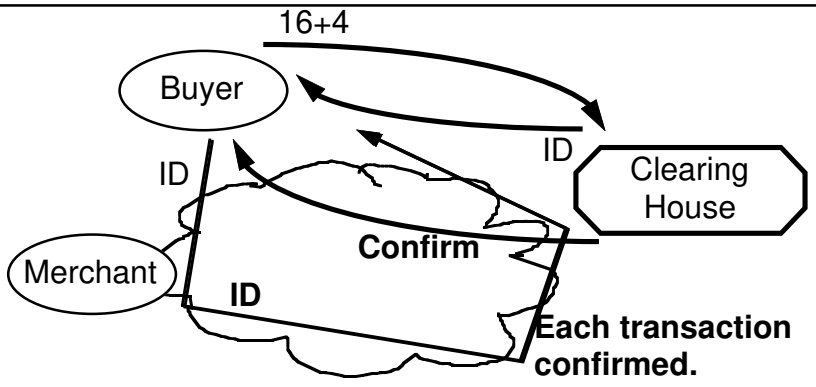
Scheme "ID confirm"



Each transaction confirmed.
Requires mildly safe user account.

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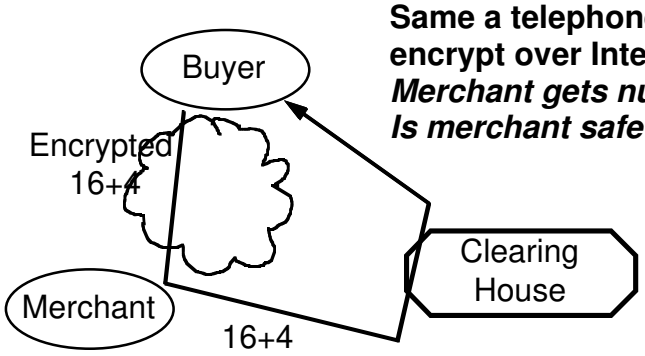
Scheme "Secure link"



Same a telephone, but encrypt over Internet.
Merchant gets number. Is merchant safe??

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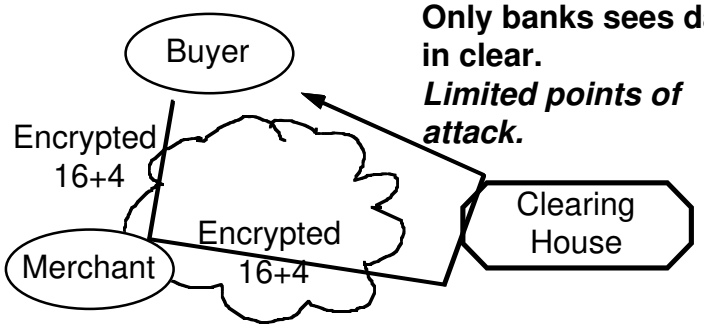
Scheme "Mediated"



Only banks sees data in clear.
Limited points of attack.

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IETF standards efforts

- EDI
  - Proposed standard, RFC 1767
  - MIME-based envelope
- Payments
  - Nascent effort
  - Focus on architecture & formats
  - Who will play?
- Security remains a mess

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Freezing out competition

- Non-interoperability
  - Do it because it's mine!
  - Customer lock-in through proprietary extensions
- Half-hearted integration
  - Specialized protocols for each and every need

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Disturbing trends?

- Web
  - Netscape HTML extensions
  - Netscape SSL
- Security
  - RSADSI S/MIME
  - USPS certificates
- Groupware
  - Notes
  - Collabra
  - and everyone else
- Commerce
  - Visa/Microsoft STT
  - Mastercard/etal SEPP
  - Premenos Templar
- Service
  - MSN
  - IP CIDR address blocks
- Lower layers
  - MS DNS
  - MS Bootp

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Open issues

- Protocols other than payments
  - e.g., negotiation
- Practical certificate management
- Core authentication & privacy pervasive
- Practical non-repudiation
  - And case-law to back it up
- What *needs* standardization?

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Fiefdoms vs. community?

- Vendor initiatives
  - Market lead
- Folded into public standards
  - Open access
  - Open enhancement

It all depends on market demand.
***You** are the market – start demanding!*

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