Digital Identity and PKI What's the Next Step?

Radovan Semančík

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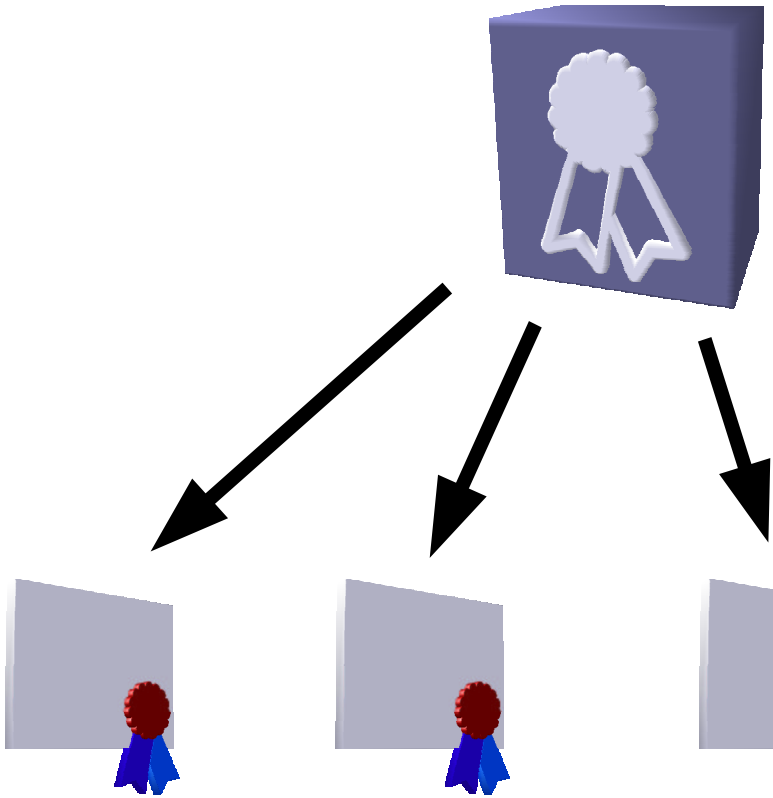
Introduction

- **Public Key Infrastructure**
  - Infrastructure built on public-key cryptography
  - Especially X.509-based infrastructures
  - “ Digital certificates”, “Electronic signatures”, CAs
- **Digital Identity, Network Identity**
  - XML-based, Internet “security” infrastructure
  - Mostly LDAP-based “Unified User Management”
- **Simplified Sign-On** (Single Sign-On)
  - Authentication infrastructure
  - Kerberos, Passport, Liberty (Phase I), ...

Public Key Infrastructure



Certificate Authority

Public Key Certificates

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Public Key Certificate

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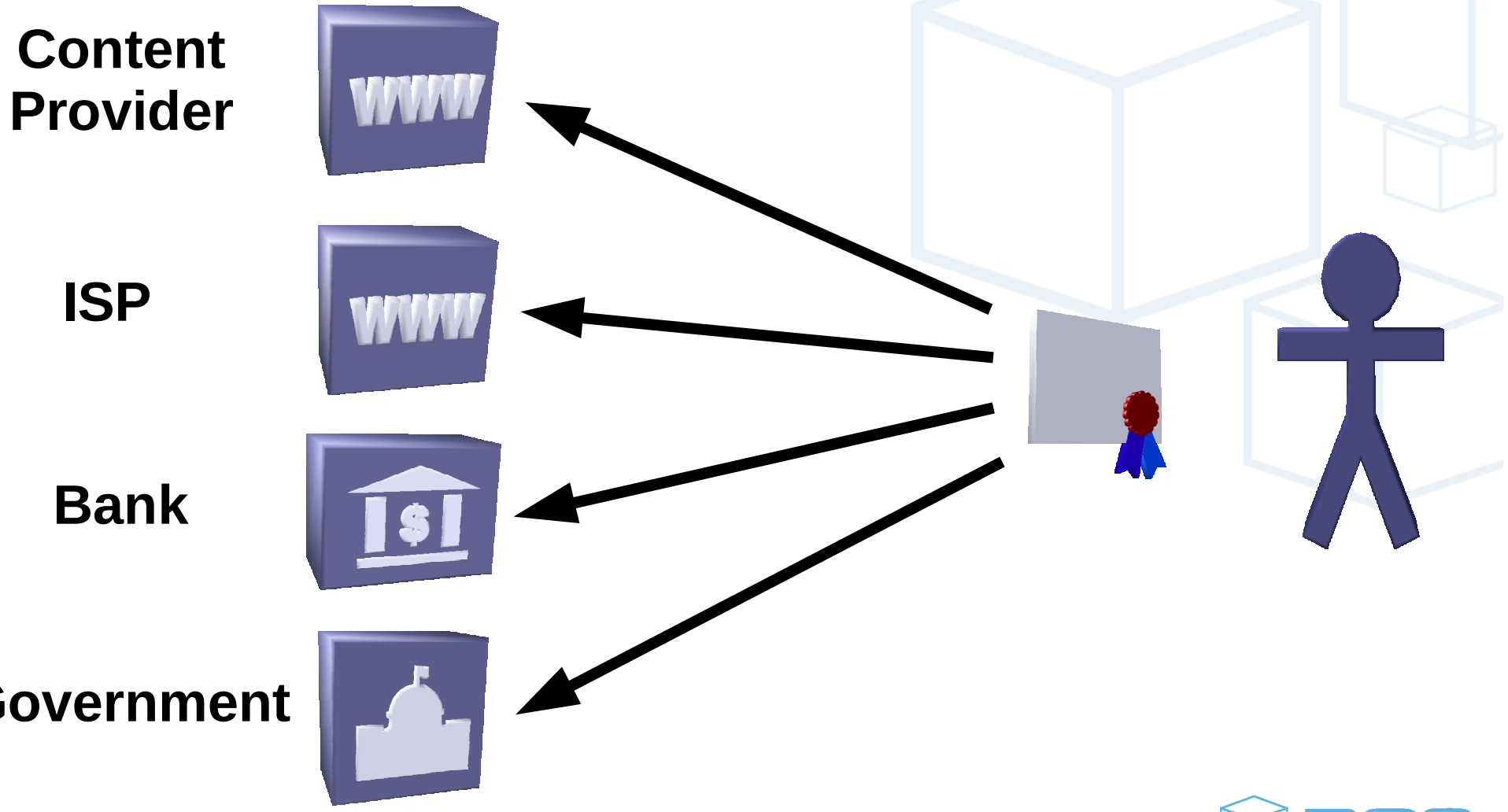
How to Use Certificates (theory)



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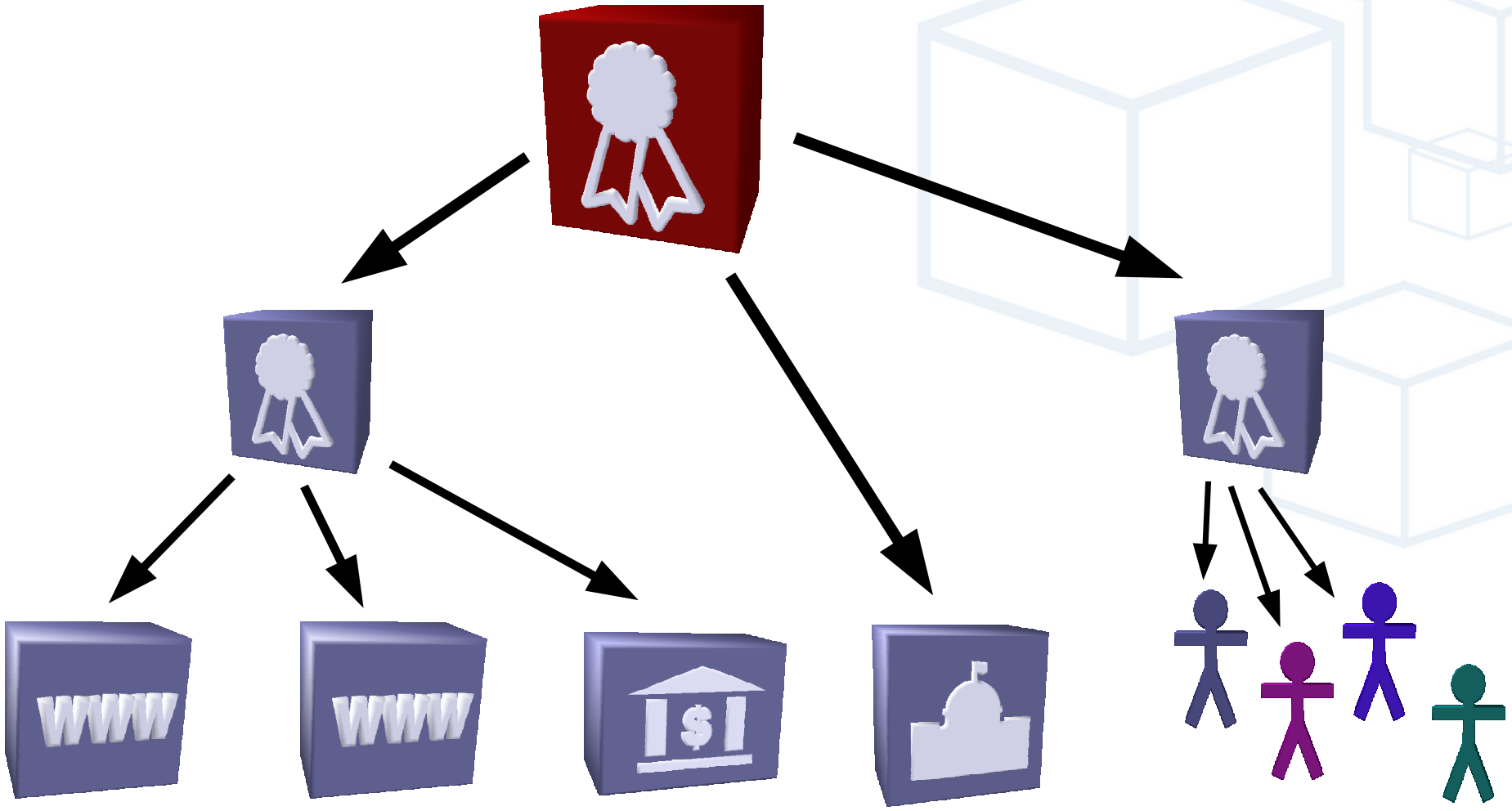
Single Root Authority



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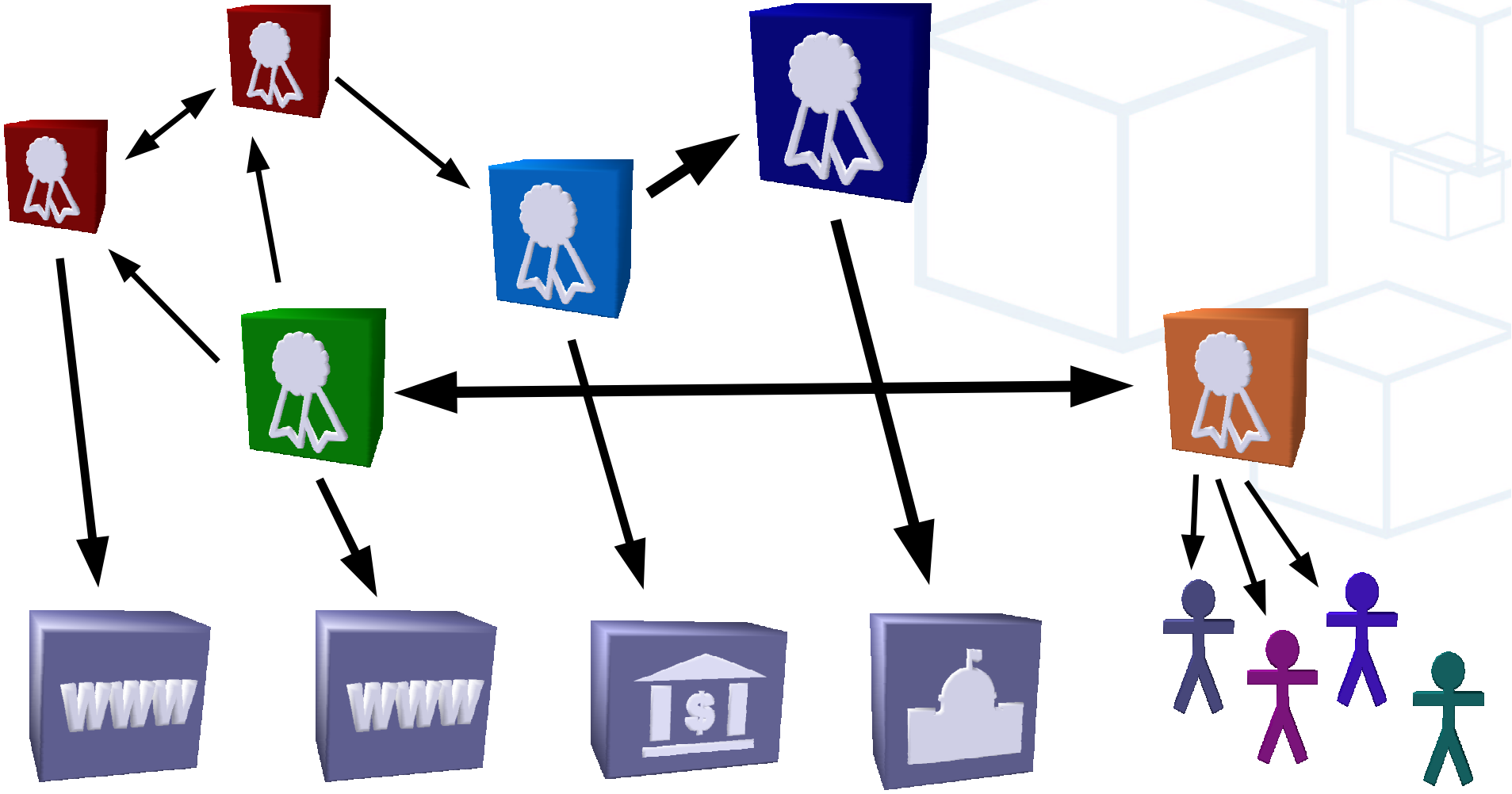
Real Situation



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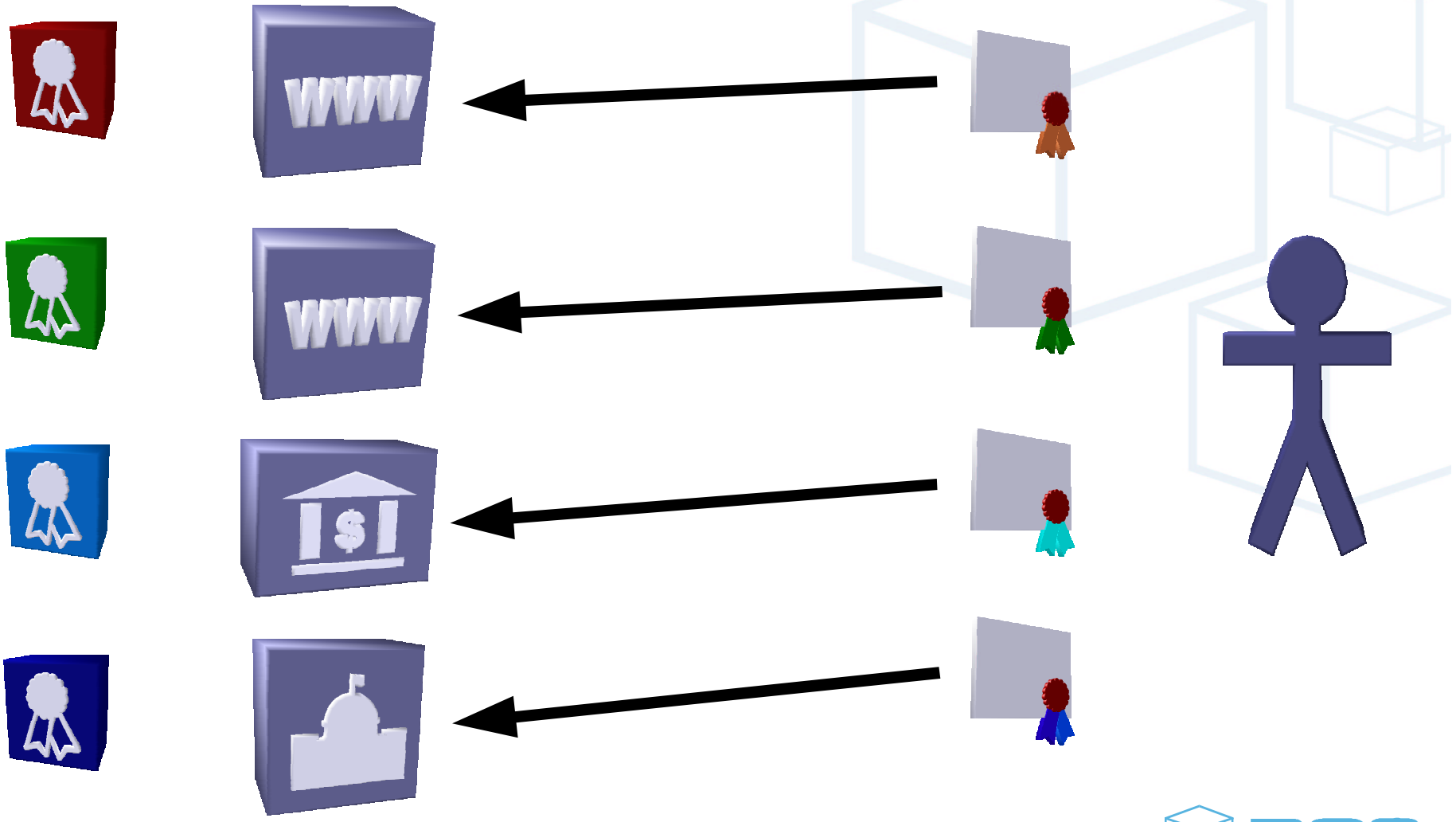
How to Use Certificates (practice)



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Privacy & Others ...

Problems:

- Privacy
- Interoperability
- Access Control
- Privileges, Roles

- Low Flexibility
- High Cost

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What Should We Do?

(Identity Crisis)

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Identity

Identity (n): collective aspect of the set of characteristics by which a thing is recognizable or known

WordNet

Language
Locality

Financial records
Helth records

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Shopping preferences
Travel preferences

Title, Role
Org. membership

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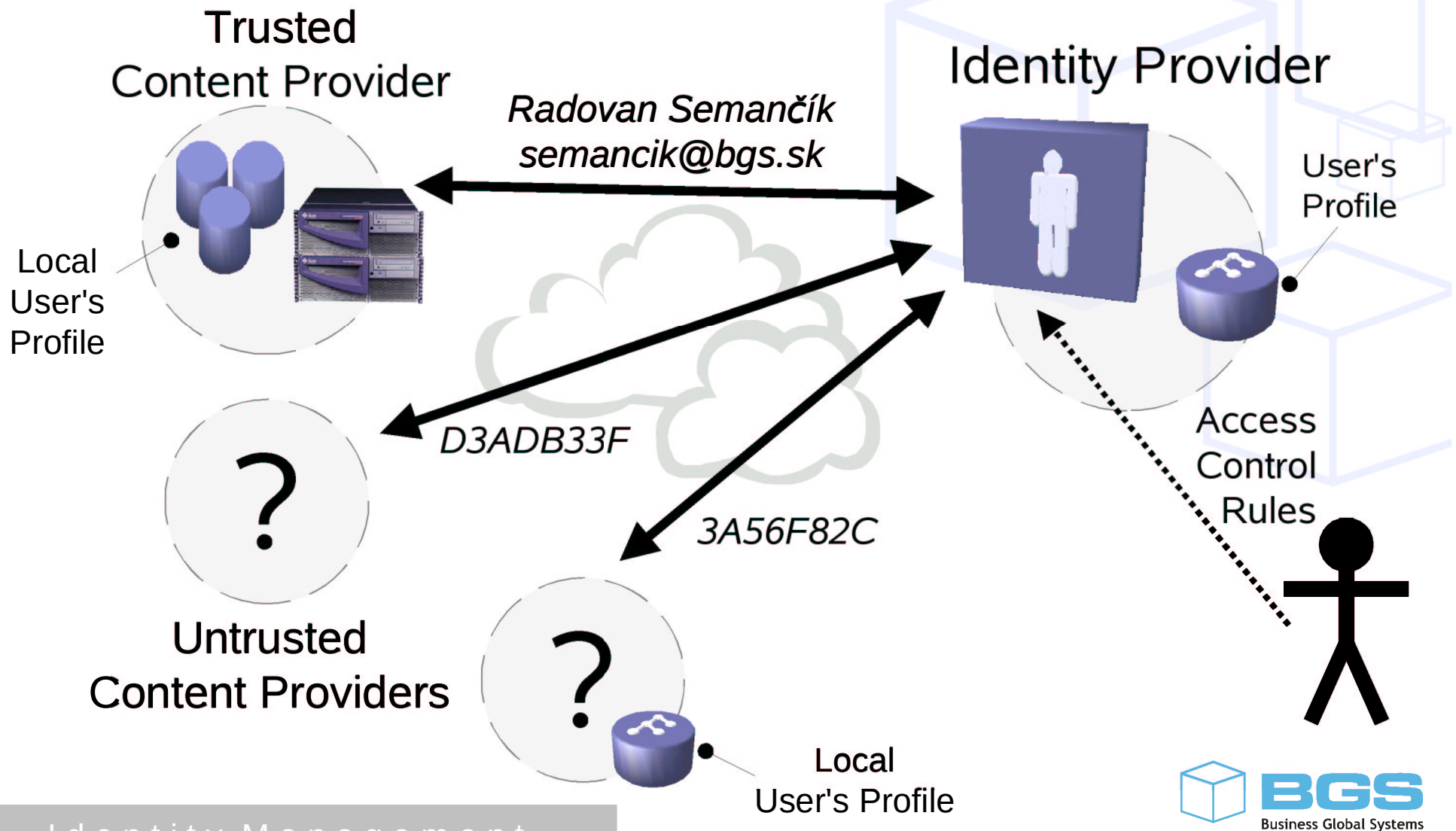
Identity Management



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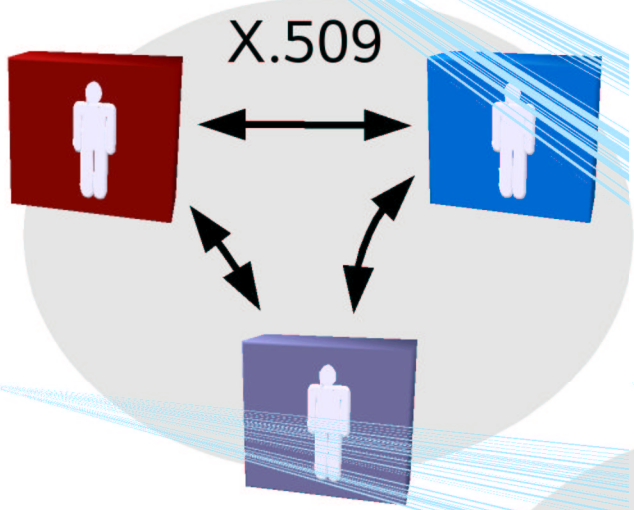
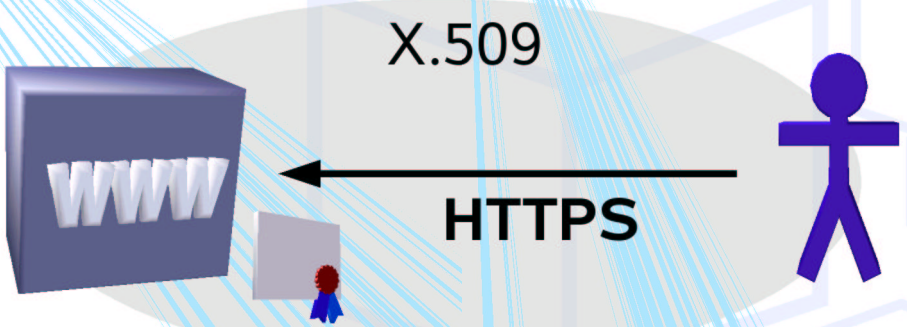
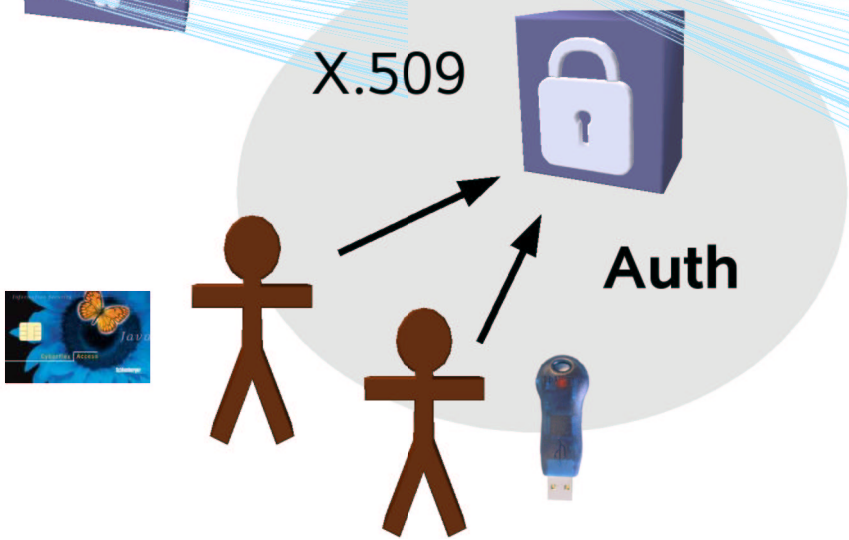
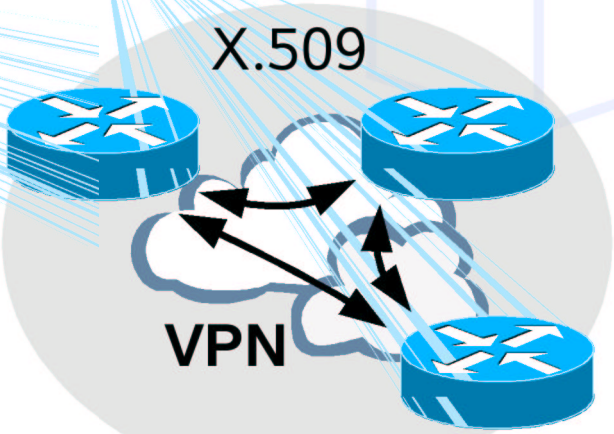
X.509 PKI is not Completely Wrong









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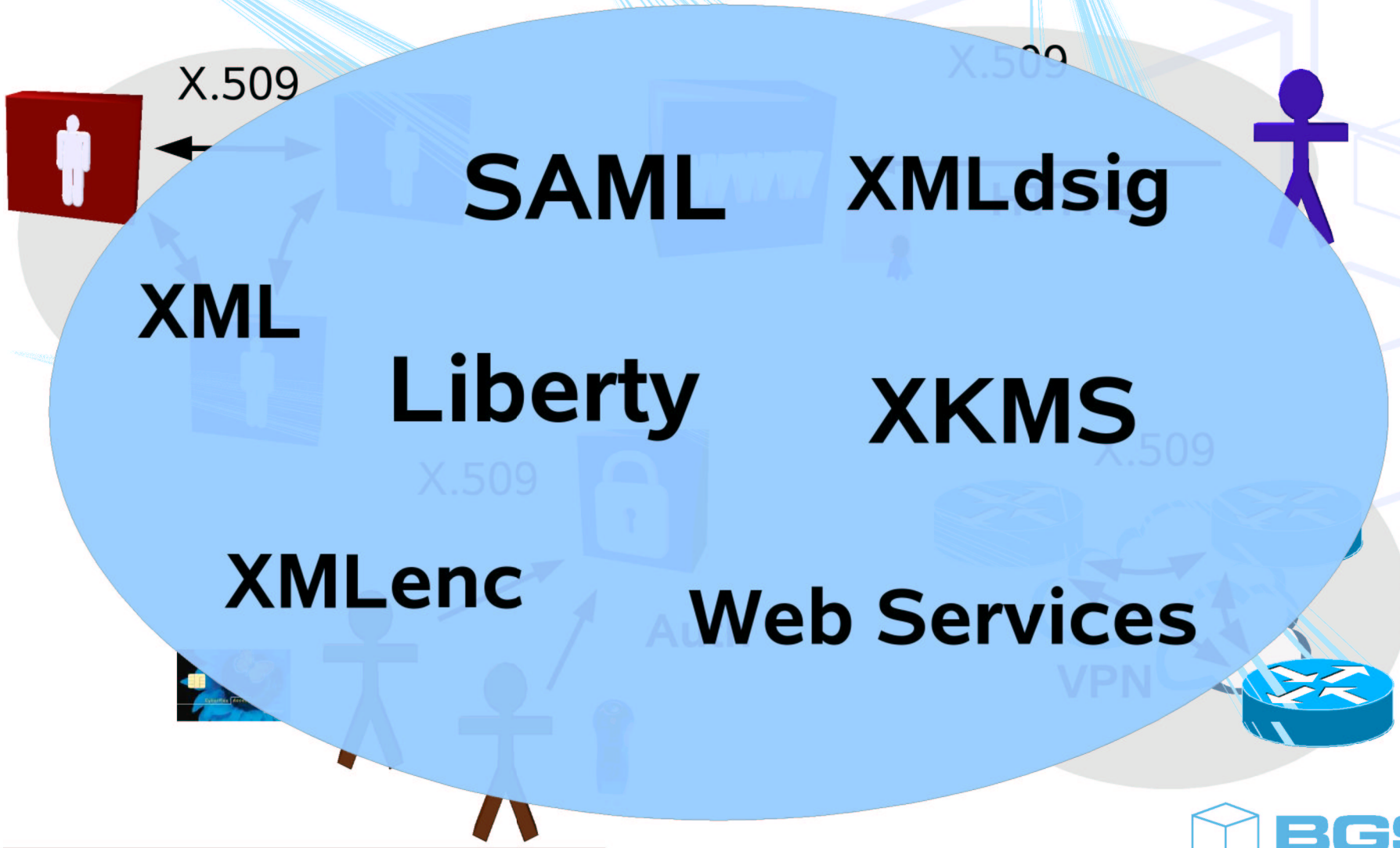
XML-based “PKI”



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What To Do

1. **Rethink, Reinvent and Redesign PKI**
   - Focus on XML, Web Services, Standards
2. **Implement Identity Management**
   - Directories, SAML, Liberty, ...
3. **Take Advantage of New Infrastructure**
   - New Services, New possibilities

Questions?

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Thank you ...

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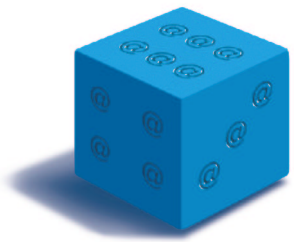

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