

"The net makes everyone a content distributor"

- Forrester Report on Content Hypersyndication, June 2000



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The Information & Content Exchange Protocol (ICE)  
and its use in creating B2B Content Networks

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**Kinecta Overview**

- Leading provider of Enterprise Content Integration (ECI) solutions for creating & managing B2B Content Networks
- Awards
  - August 2000 – Interact won Seybold Hot Pick
  - November 2000 – Kinecta won Computerworld Emerging 100
  - January 2001 – Interact won Crossroads A-List award
- Raised \$30 million to date
  - Adobe Ventures, Reuters Greenhouse, Fidelity Investments
- Target Markets
  - Financial Services, Manufacturing, Media

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**Enterprise Content Integration**

- Analogous to EAI sharing requirement for two key features:
  1. End-to-end integration
  2. Transformation and normalization of content
- Two important differences
  - EAI is focused upon structured content
  - ECI is focused upon unstructured content.
    - Unstructured content represents 80% of all content produced.
  - EAI is focused on integrating data driven applications - ERP, SCM, CRM, Acct., etc.
  - ECI is focused on integrating content driven applications - CMS, DMS, DAM, Corporate Portals, Marketplaces, etc.

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**Unstructured Content Fuels Commerce**

Nearly all business relationships are facilitated by the exchange of content

- Before the Transaction
  - Product information, component specifications, sales tools, & promotional content delivered to distributors, resellers and retailers
- During the Transaction
  - Contracts, SLAs, Pricing Sheets
- After the Transaction
  - Maintenance manuals, service bulletins, & parts catalogs distributed to customers & service partners

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**Problems Today**

- Technical Friction
  - Managing complex & growing networks
  - Islands of content within & between organizations
  - Content formatting incompatibilities
- Business Friction
  - Difficult to inform partners what content is available
  - Hard for partners to find content
  - Time consuming to negotiate business & technical terms

B2B Content Networks result from implementation of ECI and enable the controlled & automated exchange of unstructured content throughout the value chain

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**ECI Standards**

## Why a Standard is Necessary

- Without a standard, businesses must rely on either:
  - Ad Hoc or Manual Processes
    - e.g. via email or FTP
    - Unscalable
  - Proprietary or Custom Solutions
    - In-house scripts
    - Expensive to develop
    - Lack of interoperability
  - An ICE standard eliminates these issues.

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## ICE background

- ICE Authoring Group was established to address the need for a standard syndication protocol
- Founded in February 1998
- Version 1.0 released on November 1998
- AG originally composed of Adobe, Kinecta, Microsoft, Sun & Vignette

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## ICE Basics

- The ICE specification **does**:
  - shows how assets will be made available from the syndicator to the subscriber
  - describes how the fulfillment relationship occurs (the harvesting or propagation of ICE packages)
  - details how the relationship is made explicit, rather than left anonymous

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## ICE Basics Cont.

- The ICE specification **does not**:
  - specify the particulars of the applications at either end of a syndication relationship
  - dictate the format, structure or any other details of the assets being syndicated
  - deal with issues of security, authentication, non-repudiation, etc.

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## ICE Overview

- Request <-> Response Protocol
- Either party may be sender and the other the receiver
- ICE uses payload as an instance of XML document formatted to ICE Protocol definition
- Payloads contain requests, responses and unsolicited messages
- Every operation has a request/response pair, even those where there is no logical response
- Typically, Subscriber is the requestor, except in Push
- Notion of unsolicited messages

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## ICE vs. XML

- ICE is an application of the XML
- However, ICE is a protocol, not just a DTD
- Fundamentally different from other pure-document applications of XML such as MathML, PGML, etc.
- ICE does use XML's element/attribute markup model to spell the protocol

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## ICE vs RSS (Rich Site Summary)

- RSS is dialect of XML
  - Lightweight for headline/image inclusion
  - No subscription relationship management
  - No Delivery Rules
  - ICE can deliver RSS files
  - Was = RDF Site Summary (v0.90)
  - Netscape developed for MNN (My Netscape Network)

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## ICE vs. WebDAV (Distributed Authoring and Versioning)

- "WebDAV specifies a set of methods, headers, and content-types ancillary to HTTP/1.1 for the management of resource properties, creation and management of resource collections, namespace manipulation, and resource locking (collision avoidance)."

WebDAV addresses collaborative authoring environments and has very little overlap with ICE.

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## ICE vs. HTTP DRP (Distribution and Replication Protocol)

- "The HTTP Distribution and Replication Protocol was designed to efficiently replicate a hierarchical set of files to a large number of clients"
- DRP could be used to solve a portion of the data transfer problems addressed by ICE, but only for file-centric applications
- ICE solves a more general problem of asset exchange, where assets may not necessarily be files in a hierarchy, plus ...

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## ICE 1.0 Features

- **Subscription Establishment:** following business terms, ICE enables automatic subscription establishment through request Catalogs.
- **Catalogs:** Contains listing of subscription offers. Catalog format is defined.
- **Delivery Policy:** enables the creation of delivery rules and package limitation statements.
- **Delivery Modes:** Can use either Pull or Push

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## ICE 1.0 Features Cont

- **Subscription Parameter Negotiation:** enables protocol level parameter negotiation for delivery mode and delivery schedules. Does not allow for business term negotiation.
- **Packaging Sequencing Model:** Packages are sequenced in series and sequencing allows no deviations.
- **Package Relationships:** can define relationships between packages including nested groups.

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## ICE 1.0 Features Cont II

- **Intellectual Property Rights Definition:** Can define, but not enforce, set of IP Rights semantics. Also can identify rights holder.
- **Status Operations:** enables subscription cancellations & changes. Also enables status updating from subscriber.
- **Logging & Confirmation:** protocol event logging (both directions) and subscription receipt confirmation.
- **Limited Extensibility:** allows for limited inclusion of other XML markup

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## ICE 1.1 New Features

- Released July 2000
- Controlled Extensibility:** extends ICE at both the subscription and protocol levels. ICE automatically assures that both parties agree prior to operating with any new extension. Can add additional application or industry-specific extensions to support content delivery dialects.
- Generalized Parameter Negotiation:** (Negotiate any set of parameters, e.g. (price, summarization, special content issues, partial content issues, image resolution, view window size, type of graphics, etc.).

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## ICE 1.1 New Features Cont

- Delivery Policy Controls on Referenced ICE Items:** Allows a syndicator to explicitly control both the times and the authorization for a subscriber to access content.
- Carefully Specified Inter-Operability Semantics:** Rules to ensure that ICE implementations can speak to each other as the protocol gets upgraded over time.

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## Kinecta Case Studies

## Case Study



- Situation**
  - Leading provider of investment management services
  - Distributes services through network of 4,200 financial institutions, representing 60,000 financial advisors
  - Developed AdvisorXpress private web site (extranet) providing product information, literature, and tools
- Challenge**
  - Most of 60,000 financial advisors were not using Fidelity web site (AdvisorXpress)
  - Some customers were removing content and republishing on their intranets creating potential SEC compliance problems
  - FTP, email, and fax did not offer automation and control

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## Case Study



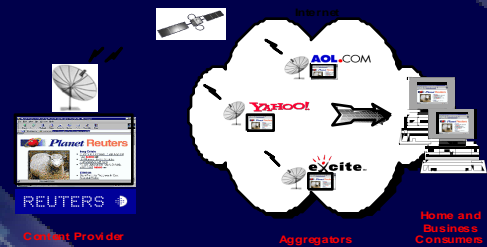
- Solution**
  - Developed AdvisorXchange content network
  - Automated solution for distributing information
  - Enables creation of bundled information packages made up of multiple file formats – HTML, PDF, images, RealAudio, presentations
  - Lists available content allowing clients to create their own custom subscriptions
  - Tracks delivery and automates content expiration

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## Case Study 2

Web Site "Islands" 1994-1995



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### REUTERS Case Study Cont

- Built D.A.R.T., Proprietary Solutions (1996-1997)
- Infrastructure burden is reduced for customers

The diagram illustrates the Reuters distribution architecture. On the left, a 'Content Provider' (Reuters) is shown with a computer icon. An arrow points to a central cloud labeled 'Internet'. Inside the cloud, several aggregator logos are visible: AOL.COM, Yahoo!, D.Knight RIDEER, and Excite. Another arrow points from the cloud to the right, where 'Home and Business Consumers' are represented by computer icons. The text 'Kineca Confidential' is at the bottom.

### REUTERS Case Study-Cont

- Introduces Internet Delivery System (IDS) – 2000 Based on Kinecta Interad solution to distribute content via ICE
- Delivers content in XML by converting internal news feeds to NewsML, ITPC's XML standard for news stories

This diagram is identical to the one on the left, showing the flow from Reuters (Content Provider) through Internet Aggregators (AOL.COM, Yahoo!, D.Knight RIDEER, Excite) to Home and Business Consumers. The text 'Kineca Confidential' is at the bottom.

### Case Study

- Background
  - Company is the leading Web measurement service
  - Provides monthly reports of Web statistics services on thousands of websites
  - Aggregate "click" data from 60,000 panelists to 30 Collection Servers Worldwide
- Need for ECI:
  - Log files quickly grow up to multi-GB in size (every 4 hours)
  - Need to aggregate frequently from large number of sources
  - 8 Full-time employees needed to manage FTP aggregation process

The diagram shows the Jupiter MediaMetrix aggregation architecture. It features two central server icons labeled 'FTP Aggregation Server'. Each server is connected to four smaller server icons representing 'Collection Servers'. The text 'Kineca Confidential' is at the bottom.

### Jupiter MediaMetrix Aggregation Architecture

This diagram is identical to the one on the left, showing the architecture where two central FTP Aggregation Servers are connected to multiple Collection Servers. The text 'Kineca Confidential' is at the bottom.

### Wireless Application Case Study

The diagram illustrates the Wireless Application Case Study architecture. On the left, a 'Content Provider' is connected to a 'Content Database'. A 'Content Adapter' is shown with four 'Adapters' (BSP-1, BSP-2, BSP-3, WAP) connected to it. These adapters are connected to a 'Database' and a 'File System'. The text 'Confidential' is at the bottom.