

Northeastern University
College of Business Administration

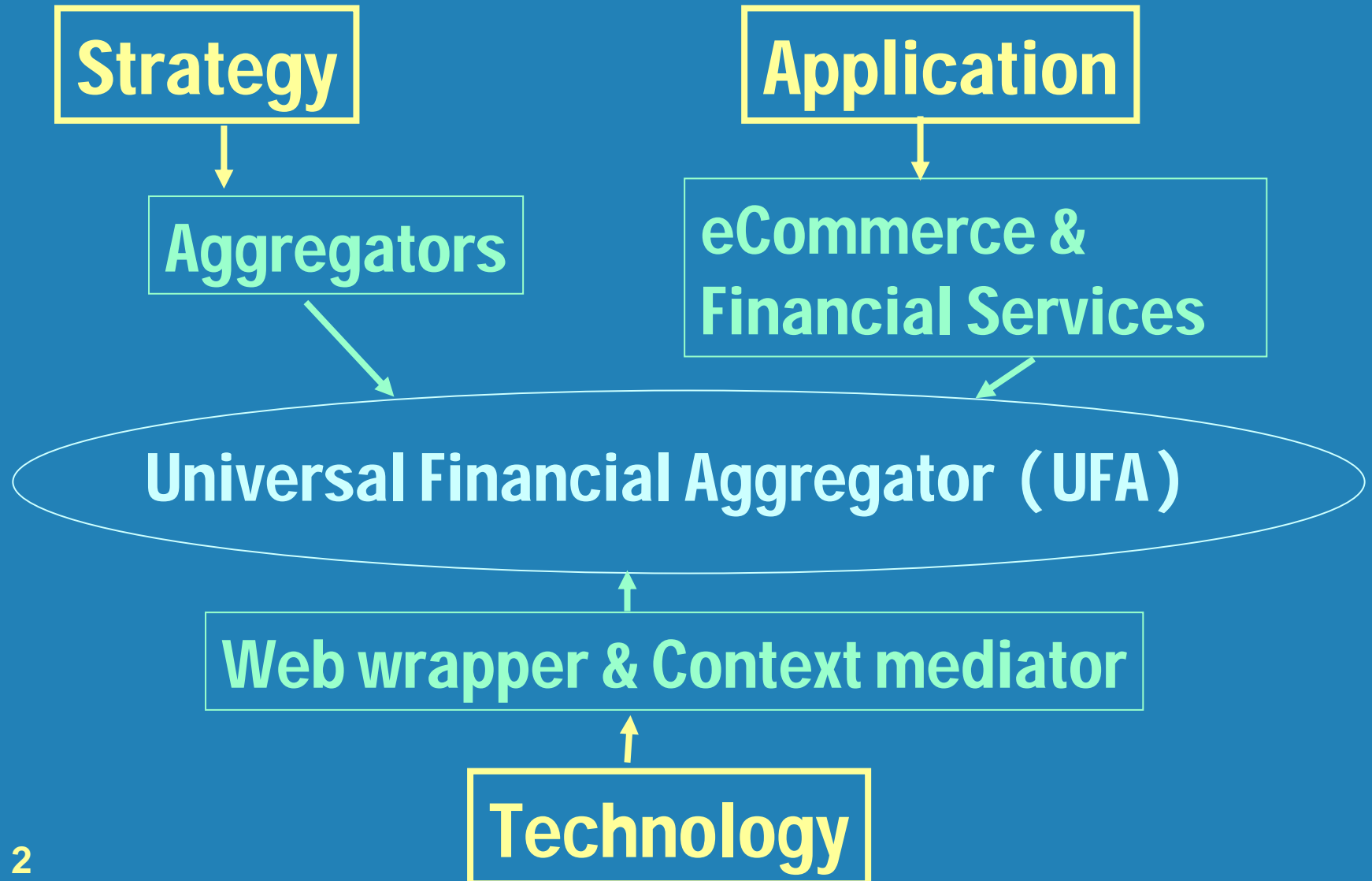
3824 Managing Information Resources

Spring 2003

Session 6

***AGGREGATORS:
The New Business on the Internet***

eBusiness & Financial Services



Overview

- ∩ What are aggregators?
- ∩ **Current aggregator types & examples**
- ∩ **Enabling technologies**
- ∩ **New emerging aggregators**
- ∩ **Aggregator / Aggregatee strategies**
- ∩ **Summary**

Aggregator Importance

- ⌚ **New business opportunity for some**
 - ⌚ **Threat to others**
- but cannot be ignored ...**

Aggregator Purpose

Ω **Collect and analyze information**

- **From multiple data sources**

Ω **Purposes include:**

- **Shop for lowest price**
- **Perform complex comparisons**
- **Manage multiple relationships**

Aggregator Definition

∩ Transparently collects information

- **with or without prior source arrangement**
- **resolves contextual differences**

∩ Performs analysis

- **not merely gather**

∩ Represents user

- **acts as agent for user**

Aggregators are not just ...

∞ **Search engines (e.g., Lycos)**

∞ **Portals (e.g., MyYahoo)**

∞ **Web Malls**

- **The above amass information (links]
but do little integration and analysis**

Overview

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Aggregator Types & Examples

∞ Comparison Aggregator

- aggregates book price information

∞ Relationship Aggregator

- aggregates frequent flier mileage programs

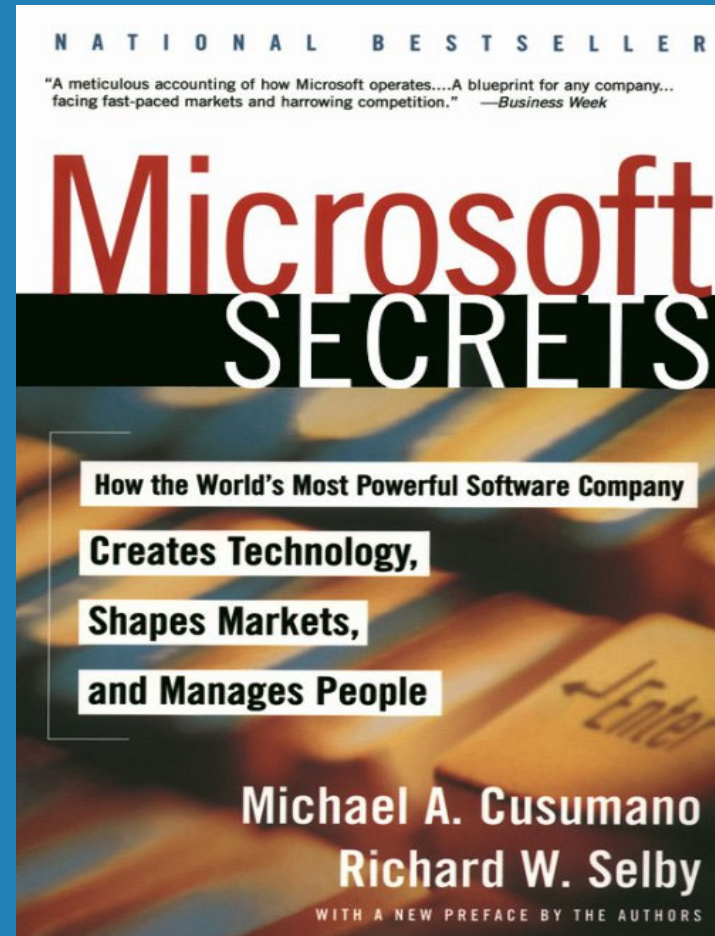
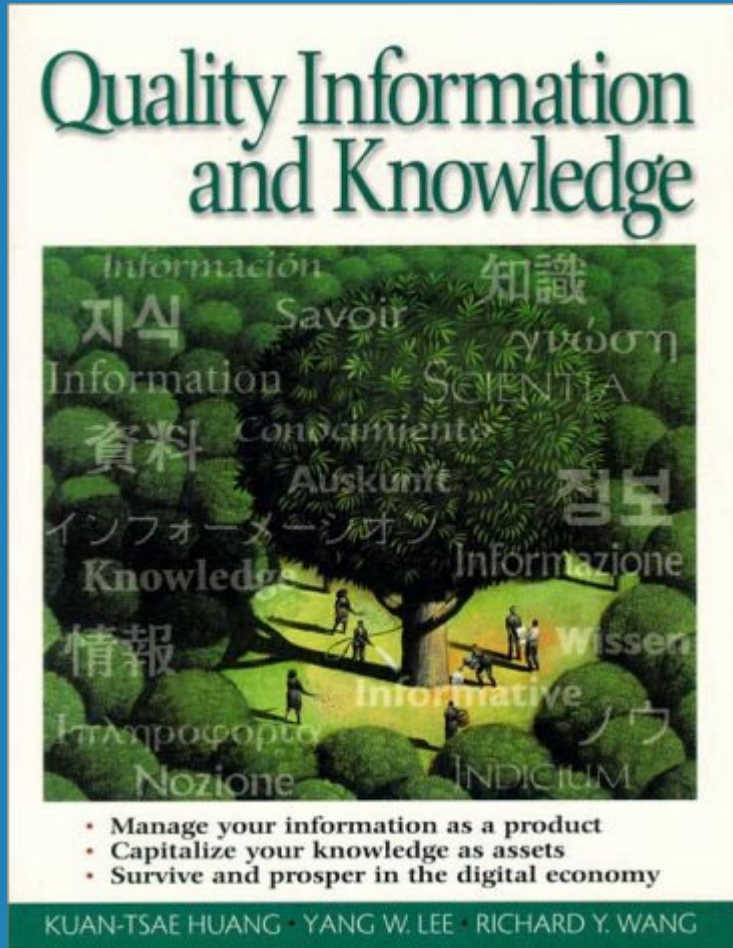
∞ Intra-organizational Aggregator

- aggregates separate departmental calendars

∞ Inter-organization Aggregator

- aggregates information about a company from multiple sources (financials, news, etc)

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ADDITIONAL INFORMATION

Microsoft Secrets; How The World's Most Powerful Software Company Creates Technology, Shapes Markets, And Manages People
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For the first time, drawing on almost two years of on-site observation at Microsoft

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mySimon Books Search Results

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30 merchants today in books

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ISBN: 0028740483
List Price: \$30.00

? [Tips:](#) Did you know that results can be SORTED alphabetically or numerically? Click on the column names to sort!

<u>Merchant</u>	<u>Price</u>	<u>Shipping Method</u>	<u>Shipping Time</u>	<u>Shipping Cost</u>	<u>Total Price</u>	
AllDirect.com	\$18.00	USPS Ground	7-21 days	\$3.45	\$ 21.45	BUY!
Amazon.com	\$21.00	Standard Shipping	3-7 days	\$3.95	\$ 24.95	BUY!
Borders.com	\$21.00	Standard	3-7 days	\$3.95	\$ 24.95	BUY!
Fatbrain.com	\$21.00	Standard	3-7 days	\$3.95	\$ 24.95	BUY!
Books Now	\$27.00	USPS Priority Mail	10-12 days	\$4.95	\$ 31.95	BUY!
Big Words	\$18.51	USPS Fast (Less than \$35)	3-5 business	\$4.90	\$ 23.41	BUY!

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Netscape - [DealPilot.com, the Ultimate Comparison Shopping Engine: Price Comparison Results]

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Click on one offer (1st column) to proceed to the respective shop!

Displaying Top Ten offers:

Total Price	Shop	Item Price	Discount	US Sales Tax	Shipping Costs	Shipping Time	Shipping Service	Delivery Time
US\$ 19.55	barnesandnoble.com, USA, NJ/NY/VA	US\$ 15.60	40%	US\$ 0.00	US\$ 3.95	3-6 days	U.S. Postal Service	4-7 days
US\$ 20.95	A1 Books, USA, NJ	US\$ 17.00	35%	US\$ 0.00	US\$ 3.95	4-6 days	UPS Ground	9-11 days
US\$ 21.37	AlphaCraze.com, USA, NY/CA	US\$ 17.42	33%	US\$ 0.00	US\$ 3.95	3-7 days	UPS Regular Mail	n/a
US\$ 21.54	BCY Book Loft, USA, OH	US\$ 17.54	33%	US\$ 0.00	US\$ 4.00	14 days	USPS 4th Class	n/a
US\$ 21.58	Shopping.com, USA, CA	US\$ 17.68	32%	US\$ 0.00	US\$ 3.90	3-5 days	Economy	6-10 days
US\$ 21.68	Kingbooks.com, USA, WA	US\$ 19.24	26%	US\$ 0.00	US\$ 2.44	14 days	USPS Book Rate	16 days
US\$ 22.00	Books.com, USA, OH	US\$ 18.15	30%	US\$ 0.00	US\$ 3.85	14-42 days	USPS Book Rate	16-45 days
US\$ 22.10	Borders.com, USA, MI/TN	US\$ 18.20	30%	US\$ 0.00	US\$ 3.90	3-7 days	Standard	4-8 days
US\$ 22.10	Books.com, USA, OH	US\$ 18.15	30%	US\$ 0.00	US\$ 3.95	2-10 days	UPS	4-13 days
US\$ 22.15	Amazon.com, USA, WA/NV	US\$ 18.20	30%	US\$ 0.00	US\$ 3.95	3-7 days	USPS Priority Mail	4-8 days

Document: Done




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Mega - Aggregators

- ⌚ **Note: multiple book price aggregators**
 - **using differing sources**
 - **giving differing results !**
- ⌚ **What about an aggregator of aggregators**
 - **A Mega-Aggregator ... more later ...**
- ⌚ **Aggregators not just about prices ...**

Netscape - [US Airways: Current Dividend Miles Account Statement]

File Edit View Go Bookmarks Options Directory Window Help



US AIRWAYS HOME **DIVIDEND MILES**

Current Dividend Miles Account Statement

Member Name: DR. STUART E MADNICK
Dividend Miles Account Number: 561N1E6
Membership Level: Dividend Miles Member
Miles Posted as of : July 22, 1999

Account Statement

Current Balance:	36,216
Year-To-Date <u>Preferred Miles:</u>	2,000
Year-To-Date <u>Preferred Segments:</u>	4

Account Activity Since Your Last Statement

Date	<u>Transaction Description</u>	Actual Miles	Bonus Miles	Total Miles
08-11-99	1100-0400-1100-0400	200	100	300

Document: Done

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MileageMiner Sample Report - Microsoft Internet Explorer provided by America Online

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[Messages](#) | [Account Summary](#) | [Expiration Summary](#) | [Activity Summary](#) | [Missing Flight Info](#) | [Offers](#)

Account Summary

Program	Account Balance	Program Status	Account-Last 4 Digits
American	16,890	Member	3694
Continental	N/A	N/A	8788
Delta	7,734	SkyMiles Member	8793
Hilton	3,875	Member	3909
Hyatt	34,373	Platinum	7746
Marriott	5,550	Red	5573
Northwest	4,528	Gold	9851
United	71,654	Premier Executive	9578
Midwest Express	500	Member	4355

[Messages](#) | [Account Summary](#) | [Expiration Summary](#) | [Activity Summary](#) | [Missing Flight Info](#) | [Offers](#)

Expiration Summary

Program	No Expiration	Expires 1998	Expires 1999	Expires 2000	Expires 2001 +
American	0	7,168	3,302	5,703	717
Continental	N/A	N/A	N/A	N/A	N/A
Delta	7,734	0	0	0	0
Hilton	3,875	0	0	0	0
Hyatt	34,373	0	0	0	0
Marriott	5,550	0	0	0	0
Northwest	0	0	0	0	4,528

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What is MaxMiles

- ∞ You give it all your frequent flyer info, it ...
- ∞ Does mileage management for you ...
- ∞ Gathers all your frequent flyer info
- ∞ Sends a personalized report via email
- ∞ Updates reports on web site daily
- ∞ Searches for missing mileage credits
- ∞ Analyzes most current mileage offers

From US Airways site

"Access to this information is subject to the rules in the Dividend Miles Membership Guide. In addition, by using this site to access your Dividend Miles account, you agree that you will use this site in a manner consistent with the Dividend Miles Membership Guide and you further agree not to allow access to this site to any third party by revealing your access code to any third party for any reason. Failure to comply with the foregoing restrictions on the use of this site shall be grounds for the termination of your access to this site and/or your membership in the Dividend Miles program."

"Power of Attorney" on MaxMiles Site

Enroll in MaxMiles - Microsoft Internet Explorer provided by America Online

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Frequency of email statements Monthly

Limited Power of Attorney

By clicking in this checkbox, I am indicating that I have read and that I accept the following terms and grant MaxMiles, Inc. (MaxMiles) the rights described below.

I authorize MaxMiles to access and obtain my frequent flyer account information from the frequency programs described on this registration form, as the same may be amended from time to time. For all purposes hereof, MaxMiles is granted a limited power of attorney, and I hereby appoint MaxMiles as my true and lawful attorney-in-fact and agent, with full power of substitution and resubstitution, for me and in my name, place and stead, in any and all capacities, to access such data from the frequency programs at all times as MaxMiles may determine in its sole discretion, with the full power and authority to do and perform each and every act and things requisite and necessary to be done in connection with such access, as fully to all intents and purposes as I might or could do in person. MaxMiles is further authorized to utilize such information in preparing reports regarding my accounts and can consolidate this information for MaxMiles' use as it determines in its sole discretion. I understand that MaxMiles acts solely as an intermediary, that my benefits are subject to the program sponsors' individual terms and restrictions, and that MaxMiles has no authority to access, direct or divert any program awards or other benefits. I further understand that MaxMiles has no relationship to or connection with any airline, hotel or other frequent traveler program sponsor, and agree that MaxMiles assumes no responsibility and shall incur no liability with respect to the acts, omissions or determinations of any program sponsor.

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Aggregators are your agents

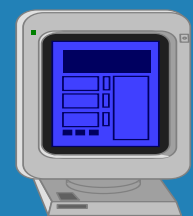
- ⌚ **Note: MaxMiles is merely aggregating your information for you**
- ⌚ **More examples of relationship aggregators later**
- ⌚ **Many more types of aggregators ...**

Intra- and Inter-Organizational Aggregator

Integrated Spreadsheet

Sources

Real time
Tibco



Microsoft Excel - demo_rev.xls

File Edit View Insert Format Tools Data Window Help

Stock Portfolio

Available Portfolios: Portfolio #2, Portfolio #3

Attributes from Research Report: Investment Opinion, 52-Week Range

Attributes from Edgar SEC Filings: Net Income, Interest Expense

Update Clear

Portfolio Performance (Line Chart)

Market Value (Pie Chart)

Stock	Ticker Symbol	Shares held	Purchase Price	Current Price	Market Value	Gain / Loss	Investment Opinion	Net Income
Intel Corp	INTC	15000	50	93.625	1404375	654375	B-1-17	1983
Intl Bus Machine	IBM	24000	65	105	2520000	960000	B-3-2-8	1,195
General Motors	GM	35000	50	64	2240000	490000	B-2-2-7	1,796
Total Value:					6164375			

Latest News:

- Intel Corp: [PRESS DIGEST - Wall Street Journal - July 29 - 2:12 am](#)
- Intl Bus Machine: [Florent to offer presentation system for internet - Sunday November 2, 1997 - 12:32pm](#)
- General Motors: [Suzuki To Appeal Jury Award - Saturday November 1, 1997 - 12:13am](#)

Netscape

Free EDGAR

COMPANIES [FILINGS] WATCHLIST ANALYSIS REFERENCE CONTACT HELP

Interest income and other, net: 215 76

Income before taxes: 3,075 1,376

Provision for taxes: 1,092 482

Net income: 1,983 894

Earnings per common and common equivalent share: \$ 2.20 \$ 1.02

Cash dividends declared per common share: \$ 0.05 \$ 0.04

Weighted average common and common equivalent shares outstanding: 900 880

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Search News Help

Intel Corp

Tuesday July 29, 1997

[PRESS DIGEST - Wall Street Journal - July 29 - Reuters - 2:12 am](#)

Merrill Lynch Research Report: General Motors

Long Term Recommendation: ACCUMULATE

Price: \$57

12 Month Price Objective: \$68

Estimates (Dec): 1996A 1997E 1998E

EPS: \$7.44 \$7.5 \$8.23

P/E: 7.63x 7.83x 8.03x

Opinion & Financial Data

Investment Opinion: B-2-2-7

Mkt. Value / Shares Outstanding (mn): \$89,011

External

Internal

Aggregates

∞ **Books.com, MySimon.com, EvenBetter.com**

- **Barnes and Noble, Borders, Amazon,...**

∞ **MaxMiles**

- **United, American, TWA, US Air,...**

∞ **Intershipper.net, iShip.com**

- **UPS, ABF, FEDeX, DHL,...**

∞ **Universal Financial Aggregator (UFA)**

- **your banks, your brokers, your billers,...**

Heard-on-the-Street (Hypothetical)

“Last year we rushed to develop a website and release our Mortgage Rates on the Web, ... this month we no longer sell mortgages. Isn't e-commerce great.”

--- an unemployed financial services aggregatee

Overview

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- ⌚ **New emerging aggregators**
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- ⌚ **Summary**

Emerging Technologies

∞ Web wrappers

- Extract selected information from web
- Allows web to be treated as large database

∞ Context mediators

- Resolve semantic (meaning) differences
- Enable meaningful aggregation

& comparison

Overview

- **What are aggregators?**
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- **Summary**

You have many financial relationships

- ∩ **Banks**
- ∩ **Brokerage accounts**
- ∩ **Credit cards**
- ∩ **Mortgages**
- ∩ **etc.**

Most financial institutions have web sites

http://arouse.mit.edu/aggregator/demo/uba/html/usaccess.html - Microsoft Internet Explorer provided by America Online

File Edit View Favorites Tools Help Links »

Account Summary

NOTE: Please do not use your browser's navigation buttons within USAccess Bank. Click the "Help" button above for further information.

Deposit Accounts

Account #	Product	Current Balance*	Available Balance
98765321	MONEY MARKET	7,508.35	7,508.35

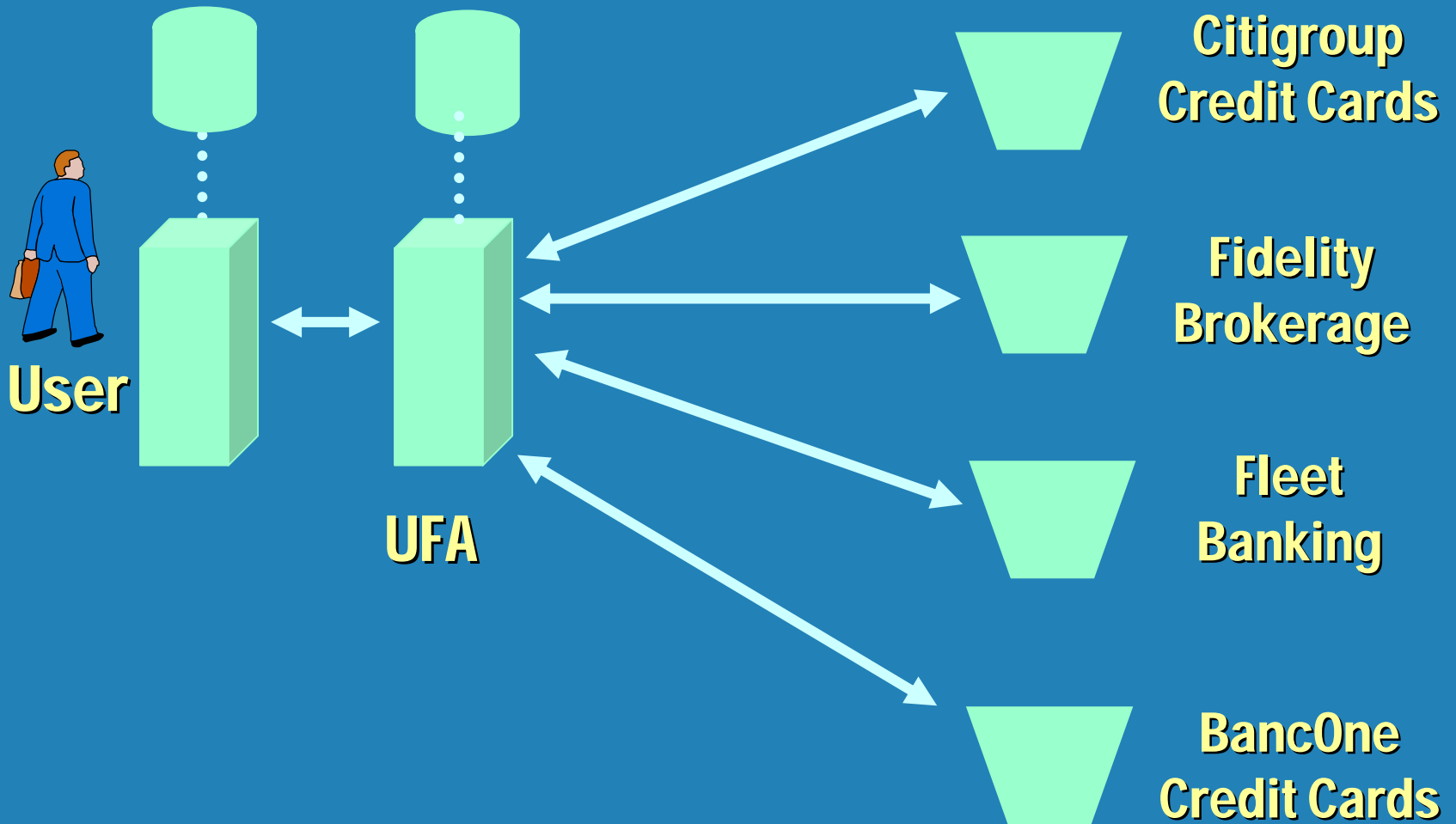
Loans

Account #	Product	Current Balance	Available Credit	Pay Off Amount**	Payment Due	Due Date
-----------	---------	-----------------	------------------	------------------	-------------	----------

* Checking account balance may not reflect recent transactions, bill payments or checks written which have not yet been processed.
** Loan payoff good for today's date only. For a future payoff, please send a request via support@usaccessbank.com or call (877) 3MYBANK (369-2265).

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Concept of a Universal Financial Aggregator (UFA)



Universal Financial Aggregator (UFA) Demonstration

Universal Banking Application - Microsoft Internet Explorer provided by America Online

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Universal Financial Application

Username:

Password:

About The Universal Financial Application

Ever since the deregulation of the financial industry in the 80s, individuals have been expanding the number of financial institutions that serve them. It is not uncommon to find a person with a credit card that comes from a different bank than the issuer of his/her checking account.

The Universal Financial Application (UFA) is a demonstration that provides integrated access to all of the user's financial accounts that are accessible online. Instead of only seeing individual accounts, the user can instantaneously view his/her financial status through a personalized balance sheet. In addition, the UFA also helps the user manage the plethora of logins and passwords. Moreover, given the user's financial information as well as knowledge of other available financial products, the UFA is capable

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Aggregated Report produced (top part)

UBA - Microsoft Internet Explorer provided by America Online


File Edit View Favorites Tools Help

Universal Financial Application


Advisors Wizards Agents

Edit Account Log Out

Deposit Accounts

Bank Name	Account Number	Nickname	Account Type	Available Balance
 BankOne	426842545	234234	Checking	2200.00
 Security First Network Bank	1298145662	My general account	MMA	2000.00
 Citibank	785149478	school 1	Checking	957.00
Total:				5157.00

Credit Cards Accounts


Issuer	Account Number	Nickname	Available Credit	Balance
 FirstUSA	413741589	Misc. Card	788.00	1212.00
 FirstUSA	312454584	Emergency Card	900.00	100.00

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Aggregated Report produced (bottom part)

UBA - Microsoft Internet Explorer provided by America Online




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[Advisors](#)
[Wizards](#)
[Agents](#)
[Edit Account](#)
[Log Out](#)

	FirstUSA	312454584	Emergency Card	900.00	100.00
Total:				1688.00	1312.00

Brokerage Accounts - click here to aggregate all your brokerage accounts

Broker	Account Number	Account Name	Nick Name	Total Value	
	E*Trade	943856	SASHAM	Daydream Account	94168.75
	E*Trade	742841	Steven	Trading Account	61612.75
	E*Trade	545631	test1	test1	0.00
Total:				155781.50	

Net Worth

Assets	Savings	5157.00
	Brokerage	155781.50
Liabilities	Credit Card Accounts	1312.00
Total:		159626.50

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Current UFA Offerings (examples)

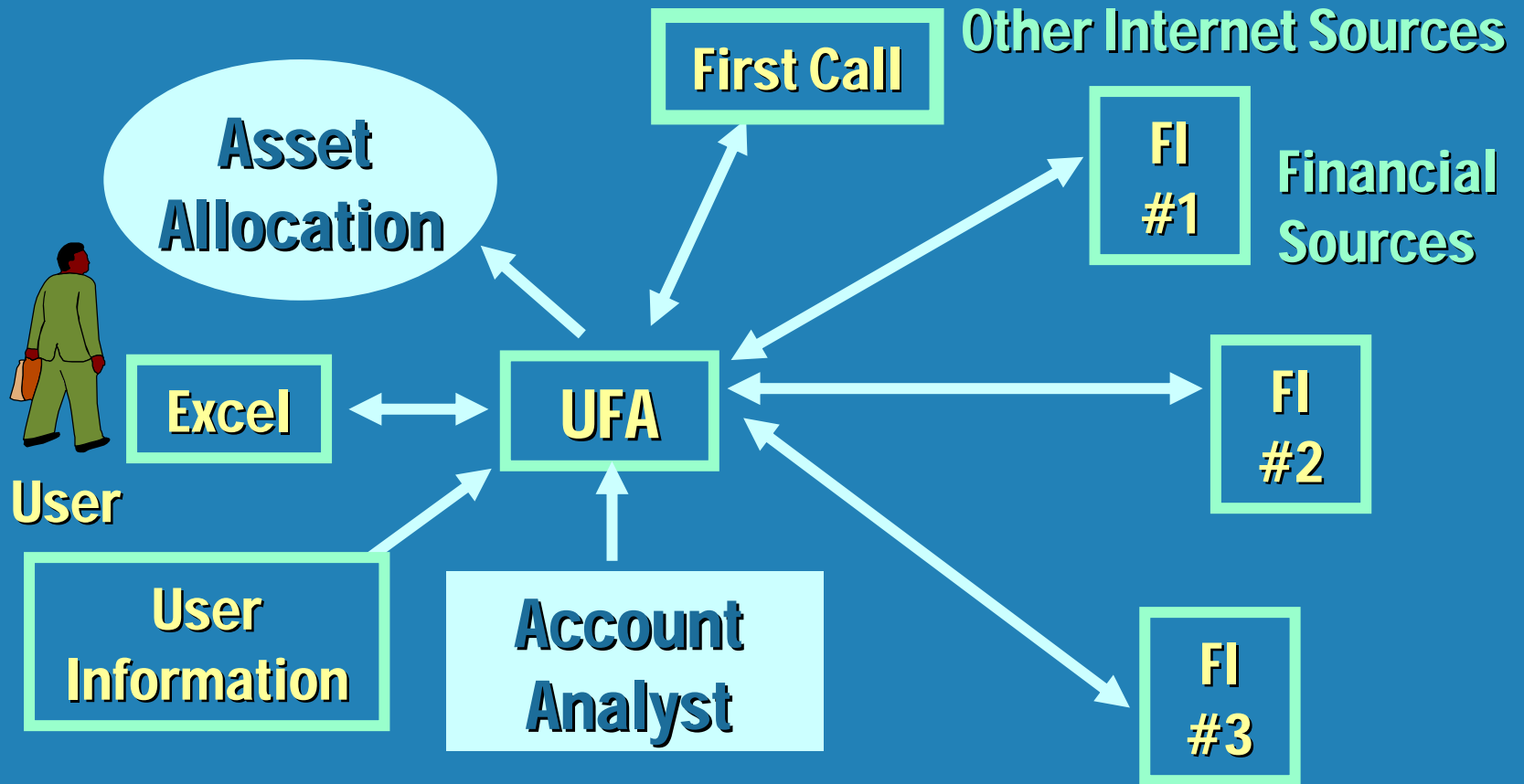
Account Aggregation Technology Suppliers

- Yodlee
- VerticalOne
- eBalance

Account Aggregation Offerings

- Chase
- Citibank (myCiti.com)
- Wells Fargo

"After Aggregation" Services



∞ **Advisors**

∞ **Wizards**

∞ **Agents**

**Intranet Sources
and applications**

Wizards: Money Market (MMA) example

UBA - Microsoft Internet Explorer provided by America Online

File Edit View Favorites Tools Help

Universal Financial Application

Advisors **Wizards** Agents
Edit Account Log Out

My Account Summary

as of Thu, 10 Feb 2000 22:11:08 -0500

Deposit Accounts

Bank Name	Account Number	Nickname	Account Type	Available Balance
BankOne	426842545	234234	Checking	2200.00
Security First Network Bank	1298145662	My general account	MMA	2000.00
Citibank	785149478	school 1	Checking	957.00
Total:				5157.00

Credit Cards Accounts

Issuer	Account Number	Nickname	Available Credit	Balance
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MMA is also an aggregator, of MM rate sources

UBA - Microsoft Internet Explorer provided by America Online

Maintain your accounts with the help of electronic wizards

Wizards

Please select a wizard: Money Market Wizard Go!

The MMA Wizard has examined your account.
If you put your money in:

Republic Bank and Trust
for
12 months
you can make an extra:
\$173.38*

*at the current rates

Here's what you *would* have saved using the Money Market Aggregator!

The following are the Top 3 options available to you:

Bank Name	APY	Minimum Deposit	Possible Earnings	
Republic Bank and Trust	5.36	5000	\$173.38	Do IT
Domestic Bank	5.30	5000	\$163.04	Do IT

Better rates

37

Start No... Ex... Eu... W Mi... Mi... Pa... Mi... htt... W Mi... U... U... 10:22 PM

Multi- Mega- Aggregators !

- ∞ **The Universal Financial Aggregator (UFA) :**
- ∞ **Aggregates your financial information**
 - **several ways: totals and stock holdings**
- ∞ **Also uses the Money Market Aggregator**
 - **which draws on multiple MM sources**
 - **including sources that are, in fact, aggregators of some MM sources**

UFA Goals

- ∞ **Consumers and Financial Institutions:**
 - **Can do what they do better**
 - **Can do things they could not do before**
 - **Redefine the use, role, and relationship of financial service**
- ∞ **Business-to-Business examples also**

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Key Conclusion - Everyone Impacted

∞ **Aggregator / Aggregatees:**

- Aggregators create new marketplaces
- Aggregatees need to be in these marketplaces (external impact)
- Aggregatees need data from these marketplaces (internal impact)

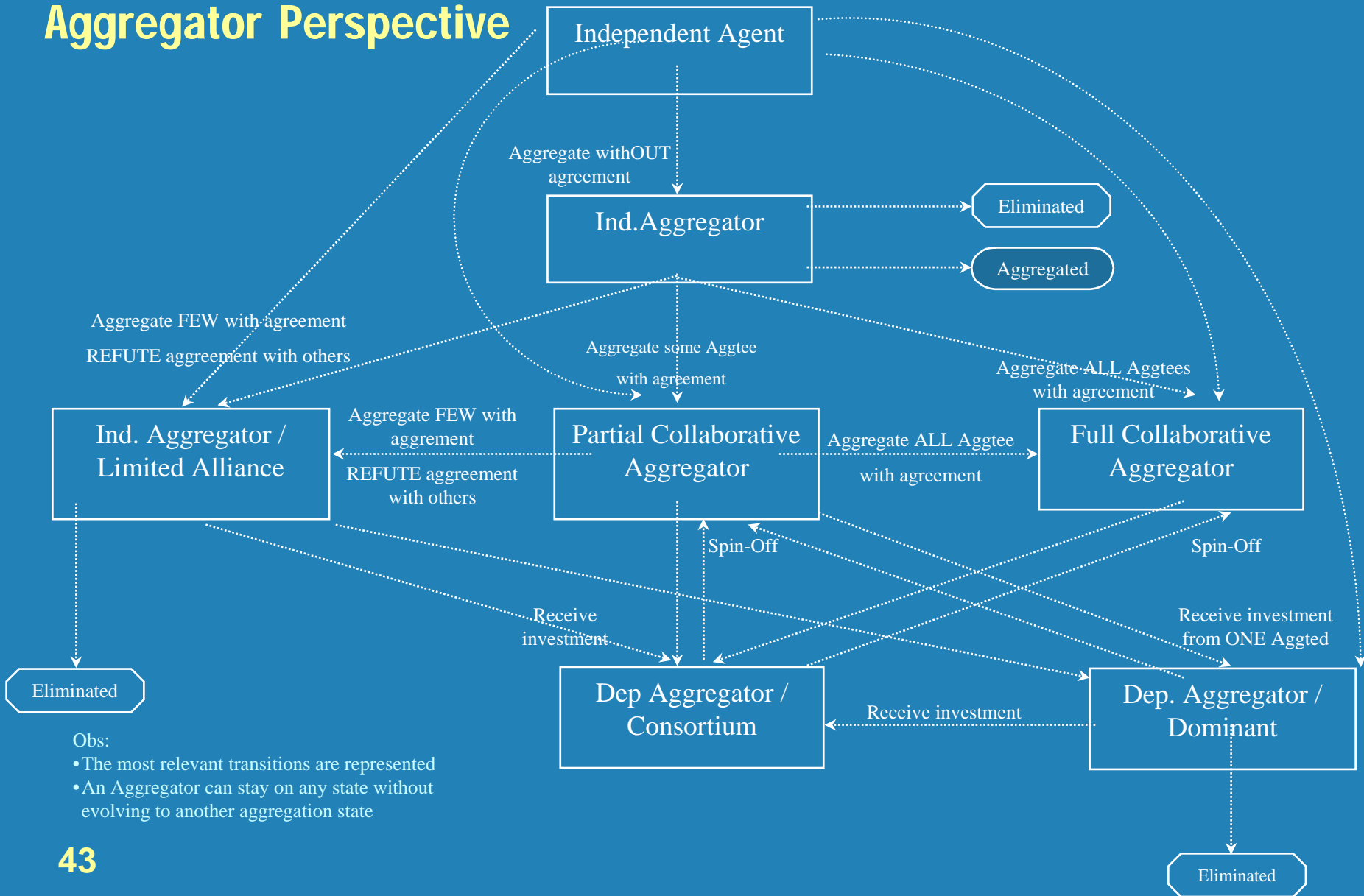
∞ **Aggregation needs to be part of every eBusiness and core business strategy.**

How Do I Play?

- ∞ **Decide if and where you want to be an aggregator.**
- ∞ **Determine ways you might be aggregated.**
- ∞ **Define your strategic advantages in both situations and use them.**
- ∞ **Decide your “relationship state” with aggregatees and aggregators.**



Aggregator & Aggregatee Relationship States

Aggregator Perspective



Netscape - [InterShipper - The Internet Shipping Center]

File Edit View Go Bookmarks Options Directory Window Help



[Home](#) [Register for an Account](#) [Login to an Account](#)

Sign up for your FREE InterShipper account!

The information presented here is not completely accurate. It makes some assumptions which may not be correct and may affect your shipping cost. For a more accurate estimate, please [register](#) for a FREE InterShipper account.

Available Shipping Methods

Click on a column header to re-sort on that column


Shipping Method	Delivery Expected	Price
RPS Ground	Thursday, 9/23 (Guaranteed)	\$ 3.18
UPS Ground (Commercial)	Tomorrow, 9/22 (Guaranteed)	\$ 3.18
RPS 3-Day Guaranteed	Friday, 9/24 (Guaranteed)	\$ 4.80
UPS 3 Day Select	Friday, 9/24 (Guaranteed)	\$ 4.80
RPS - RPSAir	Thursday, 9/23 (Guaranteed)	\$ 5.95
FedEx Express Saver	Friday, 9/24 by 4:30 PM (Guaranteed)	\$ 6.95
UPS 2nd Day Air	Thursday, 9/23 (Guaranteed)	\$ 7.00
Airborne Second Day Service	Thursday, 9/23 by 5:00 PM (Guaranteed)	\$ 7.75
UPS 2nd Day Air A.M.	Thursday, 9/23 by 12:00 NOON (Guaranteed)	\$ 7.75
FedEx 2-Day	Thursday, 9/23 by 4:30 PM (Guaranteed)	\$ 8.00
UPS Next Day Air Saver	Tomorrow, 9/22 by 3:00 PM (Guaranteed)	\$ 14.25

Document: Done

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Netscape - [Preview Shipping Charges]

File Edit View Go Bookmarks Options Directory Window Help



To view a printable summary, click on a rate.

RATES & DELIVERY TIMES - Place cursor over square next to the rate to view carrier and service.

	THU 23 SEP 99	FRI 24 SEP 99	MON 27 SEP 99	CARRIERS
8:00 AM	<input type="checkbox"/> \$44.25 <input type="checkbox"/> \$41.50			<input type="checkbox"/> Airborne <input type="checkbox"/> FedEx <input type="checkbox"/> UPS <input type="checkbox"/> USPS
10:30 AM	<input type="checkbox"/> \$19.25 <input type="checkbox"/> \$16.50			
12:00 PM	<input type="checkbox"/> \$16.90 <input type="checkbox"/> \$15.75	<input type="checkbox"/> \$7.75		
3:00 PM	<input type="checkbox"/> \$14.85 <input type="checkbox"/> \$16.25 <input type="checkbox"/> \$14.25			
4:30 PM		<input type="checkbox"/> \$8.00	<input type="checkbox"/> \$6.95	
5:00 PM	<input type="checkbox"/> \$3.18	<input type="checkbox"/> \$7.75 <input type="checkbox"/> \$7.00 <input type="checkbox"/> \$3.20	<input type="checkbox"/> \$4.80 <input type="checkbox"/> \$3.15	

Select your new options, and then click the Update Rates button.

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Aggregator “states” example

Intershipper



Independent Agent (BITS, Inc.)



Independent Aggregator



Partial Collaborative Aggregator



Dependent Aggregator / Consortium

iShip



Dependent Aggregator/
Dominant (UPS)

Revenue Models: Business-oriented (beyond advertising)

⌚ **Application Service Provider**

⌚ **Lead / Sales Generator**

- Identify buy opportunities for user
- Assemble packages
- Increase trust & reduce uncertainty

⌚ **After-aggregation knowledge provider**

- To aggregatee and/or 3rd party

Revenue Models: Consumer-oriented

∩ Information management services

- Relationship management
- Specially aggregated information

∩ Consumer agent

- Comparison shop
- Create compound product / package

∩ After-aggregation services

- Provide insights and/or take actions

**There may be money in aggregation
but...**

**The REAL MONEY is in
after aggregation
information and services**

After Aggregation Markets

- ∞ **Books.com - How to price my books?**
- ∞ **MaxMiles.com - Who flies where and when?**
- ∞ **Intershipper.net - Who ships, from where, to where, how much?**
- ∞ **Money Market/CD rates - Will my offering be effective? Are there holes in the market?**
- ∞ **UFA - Can I manage my finances better?**

Overview

- ⌚ **What are aggregators?**
- ⌚ **Current aggregator types & examples**
- ⌚ **Enabling technologies**
- ⌚ **New emerging aggregators**
- ⌚ **Aggregator / Aggregatee strategies**
- ⌚ **Summary**

Key Insights and Implications

Insights

- Everyone impacted
- Aggs not limited to price comparison
- Aggs can be combined and aggregated
- Aggs create new info spaces
- After-agg even more important
- Aggs changes relationships
- Business models and market conditions continue to change

Implications

- Be part of strategy planning
- Identify new Agg applications and business opportunities
- Entirely new types of applications can be defined
- Who will own this space
- This must be exploited
- What relationship do you want
- Must be prepared for changes

Summary

- ∩ **Understand Aggregation Opportunities**
- ∩ **Aggregator Tools**
- ∩ **Strategies for Aggregators**
- ∩ **Strategies for Aggregatees**
- ∩ **After Aggregation Opportunities**

Acknowledgements

∞ **Research funded, in part, by**

- **Citibank**
- **DoD Advanced Projects Agency (DARPA)**
- **Fleet Bank**
- **Merrill Lynch**
- **PricewaterhouseCoopers**