Opportunities for Agilent in IP Transit Market

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BA295C Project 2: April 11, 2001

Haas School of Business, UC Berkeley
Project Objectives

- How big is the current IP transit market?
- Can a spot market for IP transit be created?
- What are the opportunities for Agilent?
What is IP Transit?

- **Bandwidth**
  - a measure of network capacity

- **Peering**
  - Process of exchanging from one network to another over a connection that is provided with no monetary exchange between the carriers.

- **Transit**
  - The exchange of traffic from one carrier to another with one party paying another for its services.

IDC: Dec. 2000
Transit vs Bandwidth

Customer A

ISP

Transit

Tier 1
UUNet

Peering Agreement

Tier 1
Sprint

Transit

ISP

Customer B

Bandwidth Lines

Opportunity Recognition
IP Transit Market Size

- IDC study:
  - 4.9 bn $ in 2000 (15% of total ISP market)
  - 15.7 bn $ by 2005
  - CAGR 26.2%

- Schroeder, JP Morgan
How IP Transit Market Works

Customers → ISP → UUNet PoP

Customers → ISP → Sprint PoP

UUNet

Sprint

Internet

Opportunity Recognition
Opportunity Recognition

IP Transit Market Players

Source: IDC Dec 2000

- UUNet: 43.6%
- Genuity: 16.3%
- Sprint: 9.3%
- Level3: 5.5%
- Qwest: 4.6%
- AT&T: 4.3%
- Other: 12.6%
Project Objectives

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Opportunity Recognition

Transit spot market requirements

- **Volume**: large no’s of buyers and sellers
- **Neutrality**: Trading organization cannot be a market player
- **Anonymity**: Sellers/buyers not known
- **Speed**: dynamic provisioning
- **Wide coverage**: many Points of Presence (PoPs)
- **QoS monitoring**: impartial third party verifies product’s quality
- **Standard contract**: size, duration, location, QoS
Where’s the Pain in today’s market?

- **Oligopoly**
  - Few vendors: Uunet, Genuity, Sprint
  - Many buyers: ISPs, ebusinesses

- **Contracts:**
  - Long term contracts: 2 years
  - Bilateral negotiations
  - Long provisioning time: 6-7 months
  - Volume based pricing model

- **Tier 1:**
  - Average under utilization
  - High SG&A

- **Tier 2-3:**
  - Trapped by Tier 1 in long term contracts
Opportunity Recognition

Why a Spot Market?

- Increasing competitiveness
- Tier 1 (Sellers)
  - Dynamic, fast provisioning
    - Lower SG&A, provisioning costs for all players
    - Lower provisioning time
  - Economies of scale
  - Increased utilization rate
- Tier 2,3 can buy instantly from different sellers
  - lower prices, better service
  - More choice
  - Standard contracts
Band-X: a spot market for IP Transit

Band-X owns a IP Transit market
- Private
- Backed by Goldman Sachs, Morgan Stanley
- Has attracted major players such as Sprint, C&W, Qwest, Level 3

Services
- provisioning using Cisco equipment (router)
- price/quality index
- billing (GS, MS bring expertise)
Opportunities

- Provide measurement hardware and software
- Certification agency
  - Measure and publish metrics
    - Daily
    - Historical records
- Provide billing and accounting services
- Develop IP-transit market place
Project Objectives

- How big is the current IP transit market?

- Can a spot market for IP transit be created?

- What are the opportunities for Agilent?
Opportunities for Agilent

<table>
<thead>
<tr>
<th></th>
<th>Fit with current business</th>
<th>Market potential</th>
<th>Barriers for Agilent*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement HW / SW</td>
<td>![Symbol]</td>
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<tr>
<td>Rating Agency</td>
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<tr>
<td>Billing / Accounting</td>
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<tr>
<td>Develop Marketplace</td>
<td>![Symbol]</td>
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<td>![Symbol]</td>
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</tbody>
</table>

* High barriers = high development or entry cost
** If bundled with hard-or software products, potential to drive other Agilent businesses
### Opportunity Assessment Summary

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Strengths</th>
<th>Weaknesses/Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Provide measurement hardware and software.</td>
<td>- Can leverage core competency.</td>
<td>- Barrier to entry is low.</td>
</tr>
<tr>
<td>- Rating agency.</td>
<td>- Leveraged credibility.</td>
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<tr>
<td>- Measure and publish.</td>
<td>- First mover advantage.</td>
<td>- No agreed standards.</td>
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<tr>
<td></td>
<td></td>
<td>- Providers have to give access to their</td>
</tr>
<tr>
<td></td>
<td></td>
<td>network</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lack required core competency.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Direct competition.</td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Provide billing and accounting services.</td>
<td>- Opportunity to build a new system anew.</td>
<td></td>
</tr>
<tr>
<td>Daily.Historical records.</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
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<tr>
<td>- Develop IP-transit market place.</td>
<td>- Can establish a foothold space.</td>
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</tbody>
</table>
Measuring Quality

- Provide measurements of performances.
  - along matrices that matter the most to customers.
- Better Measurement
  - Current measurements are crude
- Leverage expertise in measurement hardware and software
  - Benefits to customers
    - Intelligently choose of provider
    - Improved info. On IP transit services
    - Assess value for service
  - Benefit to Sellers
    - Differentiate their IP transit service based in quality (or other metrics)
    - Information to better align their service with customer need
Quality Index

- No widely accepted standards
  - some suggested by IP Performance Metrics (IPPM) working group in IETF
- Unbiased, real time, passive, protocol aware, application oriented:
  - Interval connectivity (path between source and destination within specified period)
  - Burst loss (vs random loss)
  - Latency (transmission time delay)
  - Jitter (variation on transmission time delay)
Neutral Rating Agency

- Provide Grading of Service
  - Real time IP-Transit service performance
  - Measurement indices (daily and historical)
  - Analytical services for buyers to help them grade quality of IP-Transit

- Benefit to IP-Transit Service Buyers
  - Select IP service they would like to purchase
  - Assess fair value for service they want to pay

- Benefit to IP-Transit Service Sellers
  - Certified service
  - Encourage consistent level of service
  - Differentiated service level by quality or other metrics
Agilent Opportunity Landscapes

HW/SW Supplier

Buyers

Sellers

Rating Agency

HW/SW Supplier

Buyers

Sellers

Certification Agency

Rating Agency

Opportunity Recognition
Main assumptions:

- IP transit market growth 26.2% CAGR
- Additional growth due to commoditization: 20%
- One PoP will be built for every $0.75bn transactions
- $1m in revenue from selling HW/SW to PoPs – yr. 1
- YoY growth in Revenue/PoP: -10%
- Hardware gross margin 40%
- OH: $1.1m in Yr. 1 and $0.1m thereafter
- S&M expenses $2m in Yr. 1 and $1m thereafter
- Monitoring market share growing from 50% in Yr. 1 to 80% in Yr. 6
- Transaction commission: 0.3%
# Hardware sales

<table>
<thead>
<tr>
<th></th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
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<tr>
<td><strong>REVENUES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>CAGR</td>
<td>0.26</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>IP transit market (bn $)</td>
<td>4.90</td>
<td>6.17</td>
<td>7.78</td>
<td>9.80</td>
<td>12.35</td>
<td>15.56</td>
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<tr>
<td>Growth due to commoditization</td>
<td>20%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total IP transit market (bn)</td>
<td>5.88</td>
<td>7.41</td>
<td>9.34</td>
<td>11.76</td>
<td>14.82</td>
<td>18.67</td>
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<tr>
<td>Assume 1 PoP for ... bn transit</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
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<td>PoPs</td>
<td>11</td>
<td>14</td>
<td>18</td>
<td>23</td>
<td>29</td>
<td>37</td>
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<tr>
<td>sw/hw revenues/PoP</td>
<td>1,000,000</td>
<td>900,000</td>
<td>810,000</td>
<td>729,000</td>
<td>656,100</td>
<td>590,490</td>
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<tr>
<td>% growth in revenues/PoP</td>
<td>-10%</td>
<td></td>
<td></td>
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<tr>
<td>Hardware revenue</td>
<td>11,000,000</td>
<td>2,700,000</td>
<td>3,240,000</td>
<td>3,645,000</td>
<td>3,936,600</td>
<td>4,723,920</td>
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<tr>
<td>Upgrade rev/PoP (10%)</td>
<td>-</td>
<td>1,260,000</td>
<td>1,458,000</td>
<td>1,676,700</td>
<td>1,902,690</td>
<td>2,184,813</td>
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<tr>
<td>Maintenance rev/PoP (10%)</td>
<td>-</td>
<td>1,260,000</td>
<td>1,458,000</td>
<td>1,676,700</td>
<td>1,902,690</td>
<td>2,184,813</td>
</tr>
<tr>
<td><strong>Total revenues</strong></td>
<td>11,000,000</td>
<td>5,220,000</td>
<td>6,156,000</td>
<td>6,998,400</td>
<td>7,741,980</td>
<td>9,093,546</td>
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<tr>
<td><strong>COSTS</strong></td>
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<tr>
<td>Gross margin</td>
<td>40%</td>
<td>40%</td>
<td>40%</td>
<td>40%</td>
<td>40%</td>
<td>40%</td>
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<tr>
<td>Total COGS</td>
<td>6,600,000</td>
<td>1,620,000</td>
<td>1,944,000</td>
<td>2,187,000</td>
<td>2,361,960</td>
<td>2,834,352</td>
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<tr>
<td>Sales and Marketing</td>
<td>2,000,000</td>
<td>1,000,000</td>
<td>1,000,000</td>
<td>1,000,000</td>
<td>1,000,000</td>
<td>1,000,000</td>
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<tr>
<td>Overhead</td>
<td>1,100,000</td>
<td>100,000</td>
<td>100,000</td>
<td>100,000</td>
<td>100,000</td>
<td>100,000</td>
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<tr>
<td><strong>Total costs</strong></td>
<td>9,700,000</td>
<td>2,720,000</td>
<td>3,044,000</td>
<td>3,287,000</td>
<td>3,461,960</td>
<td>3,934,352</td>
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<tr>
<td><strong>Gross Profit</strong></td>
<td>1,300,000</td>
<td>2,500,000</td>
<td>3,112,000</td>
<td>3,711,400</td>
<td>4,280,020</td>
<td>5,159,194</td>
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# Monitoring Services

Opportunity Recognition

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<td>11.76</td>
<td>14.82</td>
<td>18.67</td>
</tr>
<tr>
<td>Monitoring comission</td>
<td>0.30%</td>
<td>0.30%</td>
<td>0.30%</td>
<td>0.30%</td>
<td>0.30%</td>
<td>0.30%</td>
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<tr>
<td>Monitoring total market (mil $)</td>
<td>17.64</td>
<td>22.23</td>
<td>28.01</td>
<td>35.29</td>
<td>44.46</td>
<td>56.02</td>
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<tr>
<td>Agilent market share</td>
<td>50%</td>
<td>60%</td>
<td>70%</td>
<td>75%</td>
<td>80%</td>
<td>80%</td>
</tr>
<tr>
<td>Monitoring revenues (mil $)</td>
<td>8.82</td>
<td>13.34</td>
<td>19.60</td>
<td>26.46</td>
<td>35.57</td>
<td>44.82</td>
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<tr>
<td>Total revenues</td>
<td>8,820,000</td>
<td>13,335,840</td>
<td>19,603,685</td>
<td>26,464,974</td>
<td>35,568,926</td>
<td>44,816,846</td>
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<th></th>
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</tr>
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<tbody>
<tr>
<td>Number of PoPs</td>
<td>11</td>
<td>14</td>
<td>18</td>
<td>23</td>
<td>29</td>
<td>37</td>
</tr>
<tr>
<td>Labor cost/PoP</td>
<td>120,000</td>
<td>126,000</td>
<td>132,300</td>
<td>138,915</td>
<td>145,861</td>
<td>153,154</td>
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<tr>
<td>Annual growth in cost of labor</td>
<td>5%</td>
<td></td>
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<tr>
<td>Total Labor cost</td>
<td>1,320,000</td>
<td>1,764,000</td>
<td>2,381,400</td>
<td>3,195,045</td>
<td>4,229,962</td>
<td>5,666,690</td>
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<tr>
<td>Other costs/PoP</td>
<td>100,000</td>
<td>105,000</td>
<td>110,250</td>
<td>115,763</td>
<td>121,551</td>
<td>127,628</td>
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<tr>
<td>Annual growth in other costs</td>
<td>5%</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Total other costs</td>
<td>1,100,000</td>
<td>1,470,000</td>
<td>1,984,500</td>
<td>2,662,538</td>
<td>3,524,968</td>
<td>4,722,242</td>
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<tr>
<td>Overheads</td>
<td>1,100,000</td>
<td>1,000,000</td>
<td>1,000,000</td>
<td>1,000,000</td>
<td>1,000,000</td>
<td>1,000,000</td>
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<tr>
<td>Total costs</td>
<td>3,740,000</td>
<td>3,565,000</td>
<td>4,708,450</td>
<td>6,212,260</td>
<td>8,122,341</td>
<td>10,769,714</td>
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<tr>
<td>Gross Profit</td>
<td>5,080,000</td>
<td>9,770,840</td>
<td>14,895,235</td>
<td>20,252,714</td>
<td>27,446,584</td>
<td>34,047,133</td>
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