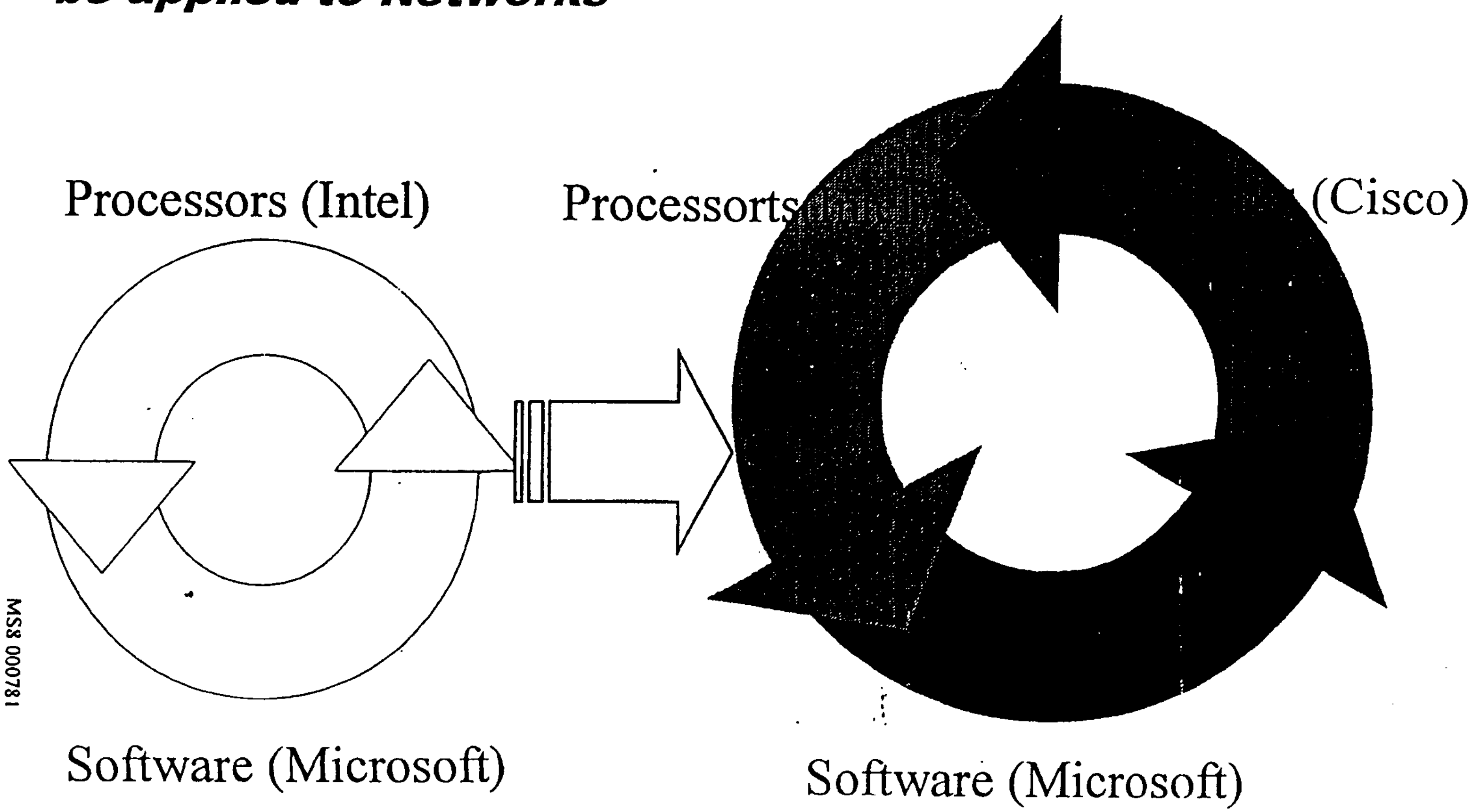
Agenda

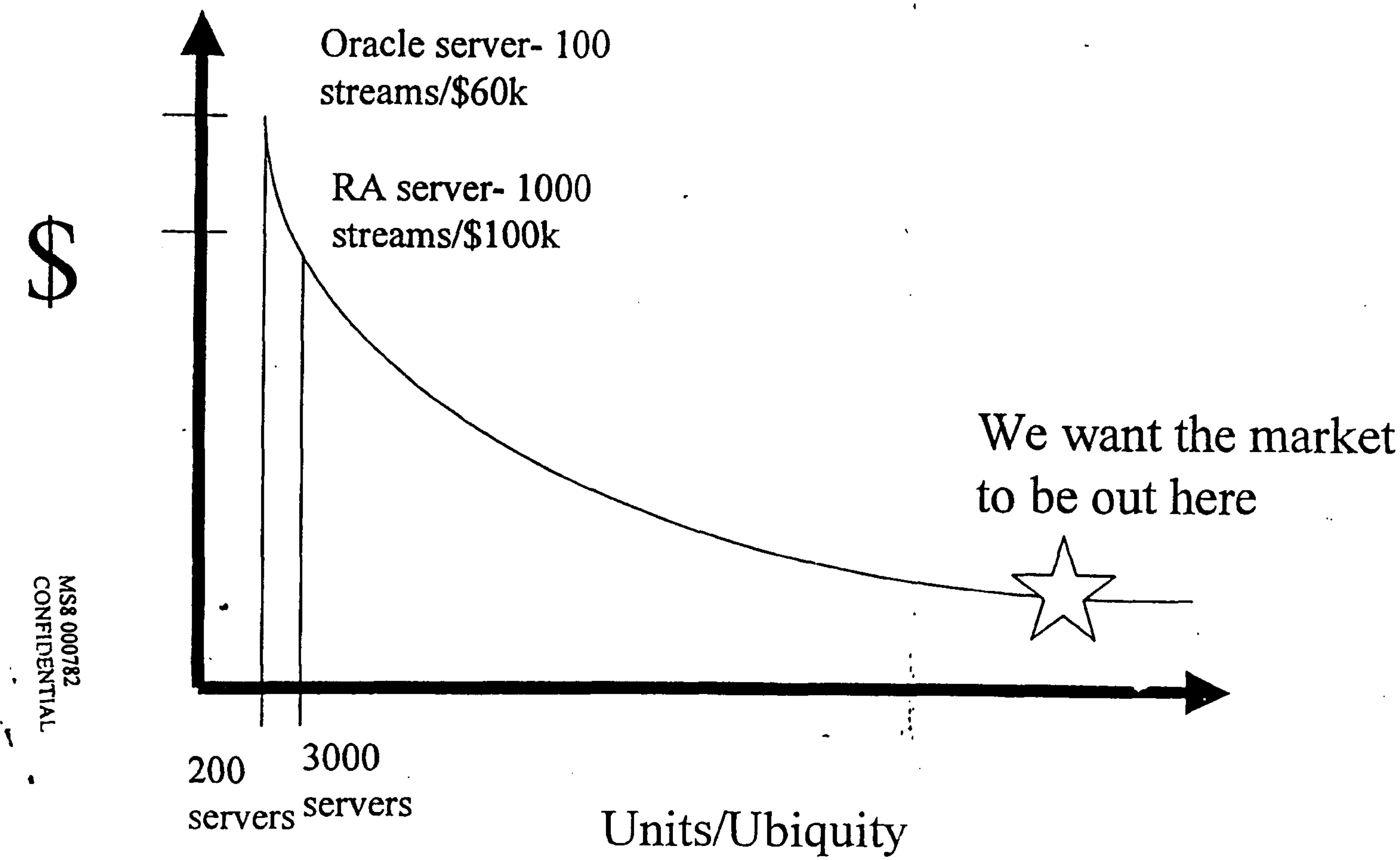
- Opportunities
- Threats
- Product “Holes” Today
- 5 Options
- Recommendations

Systems Opportunity: Paradigm Shift

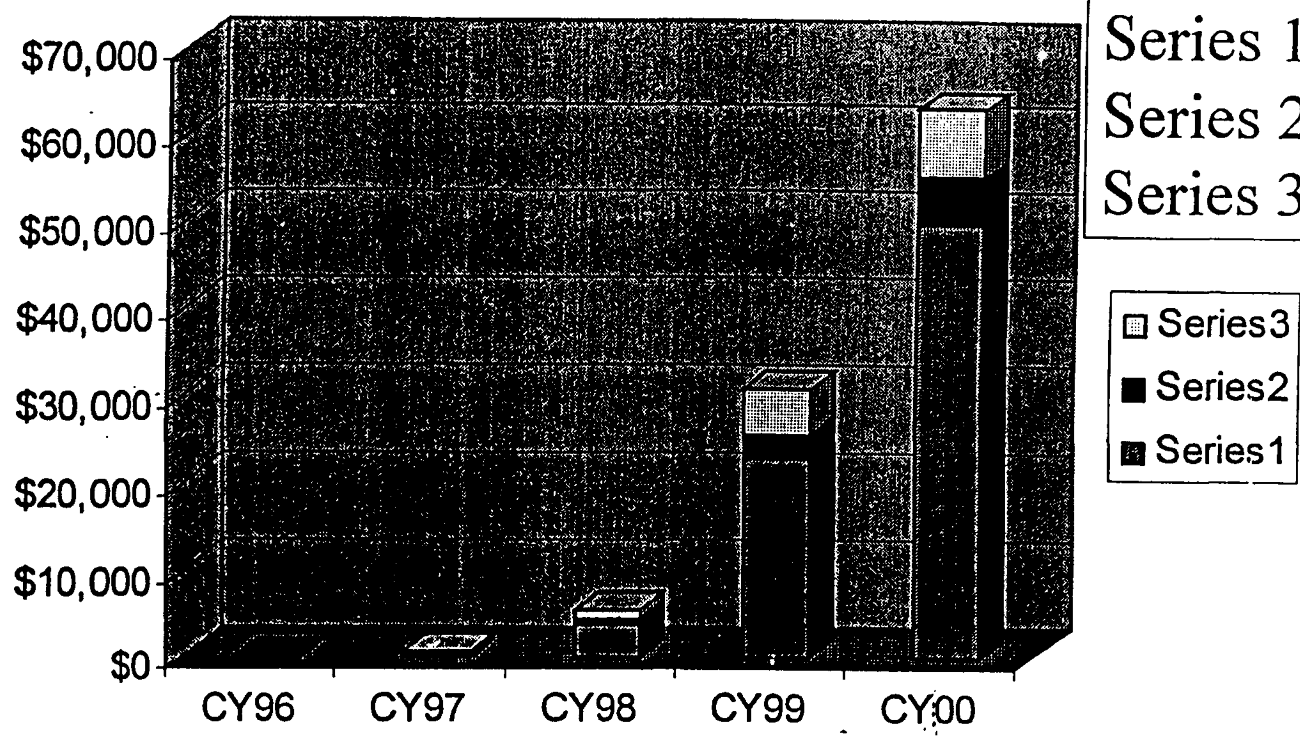
A Shift In Paradigms Is Happening—Moore's Law will be applied to Networks



Systems Opportunity: Multimedia Ubiquity



Product Opportunity: MS NetMM Servers (in 000's)

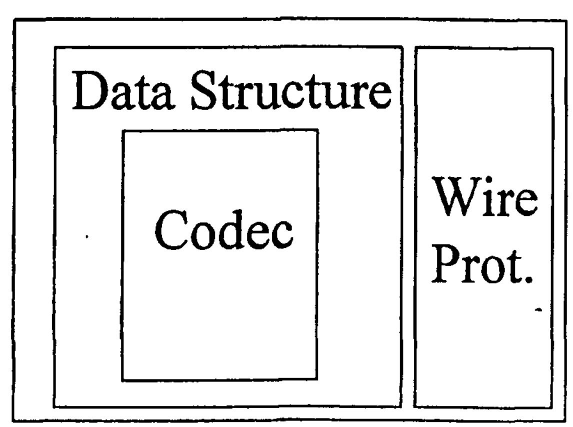


Series 1 = Intranet
Series 2 = Internet
Series 3 = Ded. Net

Threats: File Format

- The Windows API of the Internet is controlled by PN/Netscape
- Content is going into a format we don't control
- File formats on the Web <> file formats on the desktop - no other vendor can play
- Giving PN/Netscape control, gives them control of what tools do and what media types get streamed

Streaming File Format



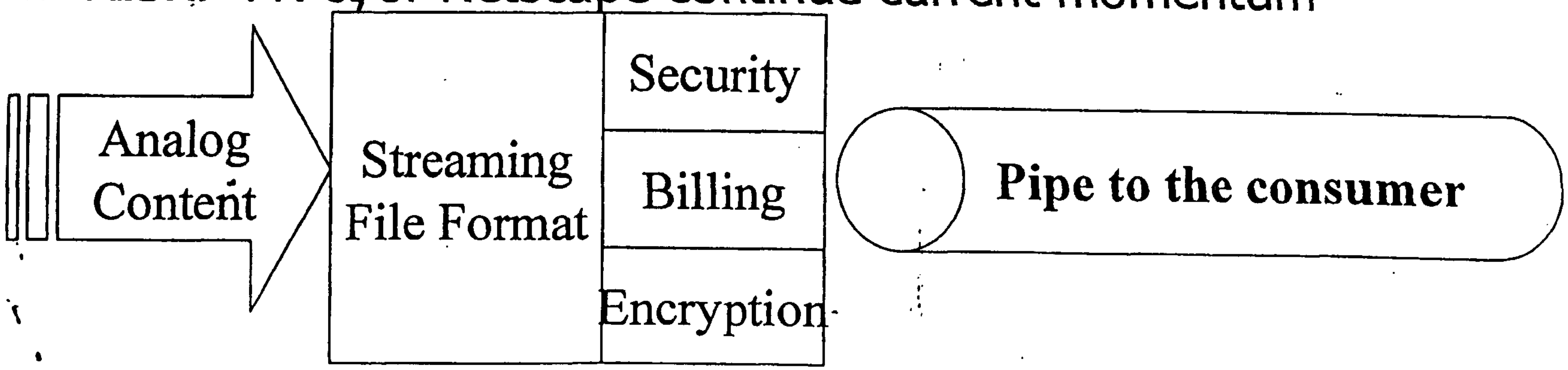
- Virtually impossible to reverse engineer
- Virtually impossible to build converters/readers
- Easy to change

Threats: Interoperability & Fragmentation

- There are 15 vendors fragmenting the market
- There is NO interoperability story between them
- Each one has different file formats, codecs, wire protocols, and in some cases data types
- It's easy to build streaming engines, file formats, and multicast engines that are incompatible
- Yet there are no tools for admin, content management, content creation, billing, etc.
- The market needs a COMPLETE solution

Threats: The game is over at 56.6 kbps

- At 56.6 kbps and with QoS, quality audio and video is possible (ie, you can now CHARGE for it, ala MSNBC)
- Whoever owns the technology that's used to bring analog content to the Web will also own Security, Encryption, and Billing API's and technology decisions
- Whoever owns the content will own the consumer eyeballs
- RISK: PN &/or Netscape continue current momentum



Threats: Networked MM Is Not A Platform Issue, It's a COMPLETE SOLUTIONS Issue

- Examples
  - MS ITG took 8 months to roll out multicast due to lack of network admin utilities
  - All routers shipped in last year support multicast (many RSVP) but it's not turned on
- Overcoming objections to Networked MM is a major obstacle
- We can seize the lead with a single, working end to end solution
  - Client, server, tools, admin, deployment capabilities, and content aggregation

NetShow "Holes" Today

- Standards Support
  - Need to move the entire product to RTP/RTCP
  - Need to move the control protocol to RTSP
  - Radically step up ASF evangelism and make it a standard
- Cross Platform Story (client & server)
  - Need Unix servers to be competitive
  - Need Mac, Win 3.1, Unix, and Netscape Plug-in clients

NetShow “Holes” Today

- Codecs
  - Implement a backchannel “tuneable” codec architecture
  - License existing best of breed codecs (most frequent selection criteria: sound & picture quality)
- Tools
  - Mac tools needed to be a contender
  - Need to resource (or build a better) Winase particularly for multicast
- Management
  - Admin, content management, network management tools needed
  - Particularly lacking multicast management tool set

NetShow "Holes" Today

- Distribution & Production
  - Need ready-made production and distribution channel (ala Timecast and Audionet for PN)
  - AMAZING low hanging fruit just taking analog content to the digital world (radio, tv, events)
  - Multicast and unicast bandwidth purchase
- Big Content Deals
  - Lacking focus and resources necessary to close content deals with major players
  - DRG not staffed
- Sales force
  - PN and Netscape have dedicated media server sales force

Current Strategy Is Failing

- NetShow as a "feature" of IIS and IE
  - Becomes a "pimple on the elephant"--no focus
  - Media Server space and HTTP client/server space are not completely the same (multimedia)
  - Dropped from IE 4.0 typical install at one point! (so we're not even an IMPORTANT feature!)
- NetShow as a "platform", not an app
  - Forced to position and be "friendly" to the competition--Netscape, PN
  - As a result, no one is considering our product vs. PN's/Netscape's
- NetShow for free
  - Corporate sales force not pushing "free things" without a lot of prodding
  - Leaving money on the table

Need Radical New Strategy To Seize Lead

- Goal: 50% marketshare by YE '97
- Build product we can charge for
- Build complete solution (not just pieces)
- Seize lead in standards efforts in this space
- Metrics to measure we've "arrived"
  - Need to get to 2 M clients/month
  - We need to either ship 150k free servers/6 mo.
  - Or we need to ship at least 1500 for fee servers/mo.

Five Options

- Option 1: Buy PN
- Option 2: Industry-shaking Acquisitions
- Option 2a: With Cisco JV
- Option 3: Turn Dial To "11"
- Option 4: Focus On 56.6 and above
- Option 5: Pull Back To Systems Components

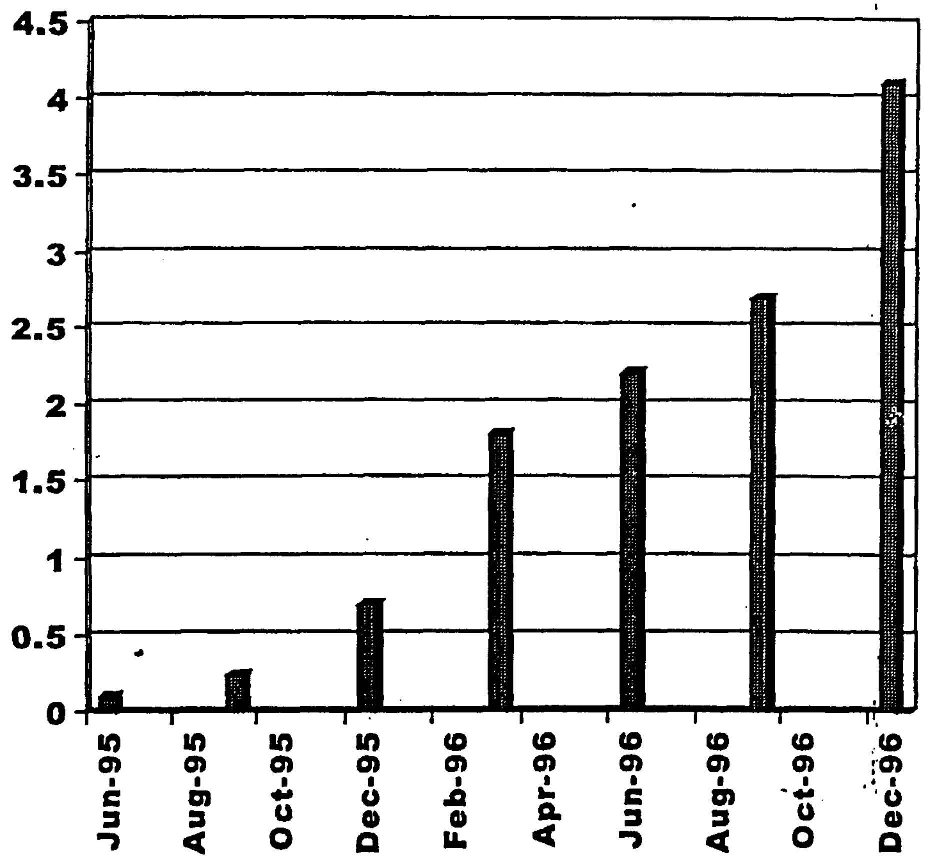
Option #1: Buy PN

- Estimated cost: $250 million
- Pro's
  - Instant 80% marketshare
  - Very high PR value (though some could be negative)
  - Wealth of content--1700 web sites deploying today
  - Biggest DEDICATED sales force (80+ sales and marketing people alone)
  - Single Transaction
  - PN has good Xplatform story
- Con's
  - Rob & ex-MS employee factor
  - Legal concerns
  - Tough to easily integrate teams
  - Doesn't complete product story--still left with holes in our product strategy
  - Most expensive
  - Drives smaller "best of breed technology" players to NSCP

Progressive Networks Facts

- Privately held, Last Round $17.9 MM (q4/96)
- VC: Accel Partners
- Revenue estimate $28.9 MM, $6.4 Book Value
- 187 employees (250 said at dev con)
  - Chairman/CEO: Rob Glaser
  - President/COO: Bruce Jacobsen
  - VP Software Development: Phil Barrett
- Estimated Purchase Price: $250mm

Progressive Networks



Estimated Number of Client Downloads

- Claiming 2M Real Video players/month

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How Would We Integrate PN If We Acquired Them?

- Get rid of their problemsome management preferably as part of deal
  - Glaser, Dunsmuir
- Keep their rational management (assuming they want to stay)
  - Jacobson, Barret
- Do immediate architectural flush of RV vs. NetShow
  - Settle on one file format, probably ASF
  - Move to RTSP
  - Use RV servers for Xplatform, NetShow (likely) for NT server
  - Clients? Tbd
- Use acquisition as an excuse to move to only for fee products
- Brand under RealAudio and RealVideo names because of brand equity
- Find high-powered exec to run combined team
  - Moshe Lichtman? Bruce Jacobson?

Option #2: Industry-shaking Acquisitions

- Total price tag: $110-170 million, with an option to split two ways
- Complete product story by buying best of breed
  - Vxtreme (standards, Xplatform, tools) $45 to $70 MM
  - Vivo (tools, codecs) $40 to $50 MM
  - Audionet (distrib. Prod., & content) $15 to $30 MM
- Codec inventory 3-4 deal, licenses total $10 to $20 MM

Rough Estimate $110 to $170 MM

- Caveat: Valuations will require more information than is currently publicly available. Next step may be to approach Cisco on their investments in Precept and Vxtreme.

Option #2: Industry-shaking Acquisitions

- Pro's:
  - Best of breed acquisitions accelerate product
  - Increases internal skills
  - No antitrust issues (not market leaders, technology leaders)
  - Sufficient staff and manpower as a result
- Con's:
  - Mgmt bandwidth (Distraction) in integrating
  - Cost
  - Time to realize technologies in product
  - Need to get Cisco bought in, given stake in Vxtreme

Vxtreme Facts

- 70 employees, established 12/95
  - President & CEO — Pete Mountanos
  - Chief Scientist & Co-founder — Anoop Gupta
  - CTO & Co-founder — Navin Chaddha
  - Director, Engineering — Prasad Vellanki
- Jan. 7, 1997. Investment By Cisco, Informix and Softbank of more than $10 million for a minority stake. Ed Kozel of Cisco, Phil White of Informix, and Gary Reischel of SOFTBANK each took board seat.

- VXtreme was founded in 1995 to develop and market a complete solution for high-quality business video over the Internet. The company's scaleable software-only video solution allows organizations to create and deliver high-quality, real-time Internet video without costly upgrades to existing computers and networks.

VXtreme Facts

- VXtreme, Stanford CA
- Business: Sales of streaming multimedia servers and tools
- Products:
  - Timeline editor for content creation
  - Simple Audio/Video capture tool
  - Streaming media server with dynamic bandwidth adjustment
  - ActiveX client, Netscape plug-in.
- Customers:
  - Hollywood OnLine, CNN Fin, Discovery Chan, Fujitsu, Compaq...
  - Claim evaluation copies in 80 of fortune 200

VXtreme Facts

- Value to Microsoft:
  - Client/Server
    - already focused on similar feature sets
    - supports dynamic bandwidth adjustment & retransmit
    - Industry recognition as best quality solution
    - Immediate gain of experienced engineers
    - Xplatform support
    - Completely standards based
  - Timeline editor
    - premier NetShow content creation tool
  - Highly motivated to succeed
    - Environment feel very similar to Microsoft
    - High activity levels at all hours
  - Strong ties to Stanford
    - Grad Student work
    - R&D access

How Would We Integrate Vxtreme If We Bought Them?

- They'd be our "leapfrog team"
  - We'd hand them the source to NetShow v.2 and ask them to implement within 4 months:
    - Unix ASF streaming version
    - Scaleable codec architecture
- We'd integrate their architects and dev managers
  - Into redesigning our product for v.3 to be standards-based and the right architecture with a 12 month goal
- We'd use their tools team to be our tools team (we have none)
- We'd use their sales force and marketing team (we have virtually none)
  - Put them in the field in Bay Area, NY, and LA
- Open issue: would they relocate to WA or would we have to coordinate a Bay Area development team
  - Has pro's and con's

Audionet Facts

- 80 employees, established 1995
- Dallas, TX
- PRESIDENT: Aubertin, Stephen
- Venture Capitalists: Capitol Broadcasting Company, Motorola, Premiere Radio Networks, and certain principals of Hicks, Muse, Tate & Furst Incorporated.
- Business: Streaming solutions provider
- Products:
  - Unicast & Multicast network management
  - End to end streaming solutions
  - Event management
- Value to Microsoft:
  - Ability to handle key streaming events
  - Content deals: MLB, College Basketball, WTA tennis, etc.
  - Infrastructure--headend and nodes
  - Major loss to PN
  - Immediate Conversion of large amounts of content
  - Have purchased ISP multicast traffic EXCLUSIVES

How Would We Integrate Audionet If We Bought Them?

- They'd be our distribution engine
  - Use them to distribute and host both business and internet/high profile content
  - Use them to do content deals with netops and satellite co's
- They'd be our aggregation engine
  - Use them as an aggregation site (ala Timecast or Marimba) to aggregate all NetShow content
- They'd be our content deal engine
  - Currently have multicast traffic, MLB, College Basketball, and other broadcast exclusives. Use them to get more.
  - Unlike MSN, their business model is to take analog media and move it to digital (radio stations, TV stations, etc.)
- We'd add their 500 site customer base to ours
- Would be our broadcast content source
- Would NOT move here

Vivo Facts

- 44 employees, established 1992
- Waltham Mass
- Business: Fast efficient content production tools coupled to codecs
- $ 5.78 MM est. Revenues (9/12/96)
  - CHAIRMAN: Ericsson, Staffan
  - CEO: Hutcheson, Zenas W III
  - PRESIDENT: Hutcheson,
  - CHIEF SCIENTIST Girod, Professor B
- Products: Vivo Producer, client
- Value to Microsoft:
  - Standards based codec technologies + low overhead codec licenses
  - PictureTel cross licensing (Chromatic, DEC, Picturetel license ιrom Vivo)
  - Fast content production tool already supports ASF
  - MAC and PC support for content tool
  - Good market position in streaming Video world

How Would We Integrate Vivo If We Bought Them?

- They'd be our Tools Team
  - We'd have them take over development of WinASE (or more likely, scrap it)
  - They'd be responsible for implementing the ALL of our features
- We'd add them to our Codec team
  - We need more fuel for our video codec effort, they would provide it
- We'd add their 1700 site customer base to ours
  - First TV, Zif-Davis, CNN, PBS, Cnet, San Jose Mercury News...
- Most of their staff would be in dev, test, pgm
  - They have no sales to speak of, but do have 4-5 management
- We'd need them to move here

Liquid Audio Facts

- Liquid Audio, Redwood City, CA
- Staff: 22
  - CEO: Kearby, Gerry
- Business: Music/Multimedia retail systems for Networks
- Products:
  - Liquifier - content production tool designed to be used at the mastering phase of audio production
  - Streaming server with content encryption and rights reporting
  - Backend content management tools for dynamic content creation and management of huge content libraries
  - Bits to atoms client - writes CD from downloaded content
- Est. 1996 Revenue $1,500,000
  - VC: Hummer Winblad, (Probably $1 MM)

Liquid Audio

- Value to Microsoft:
  - Insider experience in audio industry and extensive contacts
  - Data encryption and water marking technologies
  - Focus on key industry segment
  - Content management and dynamic content creation tools
  - Xplatform support
  - Dolby licensee--possible Dolby AC-3 license transfer to Microsoft
  - In depth knowledge in Digital Audio Workstation design
  - Closed deals with major music sites including N2K (Music Blvd, Rocktropolis) and IUMA (Internet Underground Music Archives)
  - Industry leader, gaining momentum

How We Would Integrate Liquid Audio If We Bought Them?

- Integrate their backend data management & encryption/watermarking technology
- Integrate with Audionet to drive content
  - Record label vertical
- Leverage them to seize the lead in encryption and music commerce
  - Security, billing, encryption
- Use to integrate NetShow/Merchant
- Might be a better target for investment not acquisition

Sample Public Companies

Company	52 Week Range	Last 2/28/97	Employees	Net Market Value (millions)	LTM Revenues	Net Market Value /LTM Revenues
White Pine	$9.63 $3.63	$4.75	124	$16.86	$11.67	1.44x
Vocaltec	$15.5 $3.88	$6.50	145	$33.37	$8.50	3.93x
Voxware	$8.75 $2.00	$4.75	76	$33.89	$3.99	8.48x
NetSpeak	In Registration		56	$77.60	$0.87	89.5x
8x8	In Registration		91	$107.00	$33.32	3.21x

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The companies have shown considerable volatility and analysts are expecting an industry shakeout. NetSpeak's and 8x8's IPO filing prices are not necessarily indicative of actual trading price. [8x8 is a hardware codec company.]

Option 2A: JV With Cisco To Do #2

- Pro's
  - Deploying multicast and networked multimedia in the channel will take a serious networking partner
    - Example: MS ITG took 8 months to evaluate, test and deploy multicast
    - Cisco has experienced channel, sales force, and partner base that we can leverage
  - We need Cisco pushing THIS solution, no others
  - Cisco is currently invested in and therefore pushing other companies
    - Precept and Vxtreme
    - Would take serious change to get them to back our solution vs. small companies they are invested in
  - Cisco is completely aligned with us in this area
    - Driving networked multimedia sells more networks
    - Complete solutions are what their customers are asking for
    - Cisco wants to advantage their networks, we want networks that are advantaged
  - Reduces our risk
  - Joint channel, sales force
  - Positive PR
  - Powerful impact in corporate space
  - Great engagement point with Cisco

Option 2A: JV With Cisco

- Cons
  - We want to own code
  - Difficult to pull off
  - PN goes to NSCP?
  - We may be able to get the same response out of Cisco by pushing a marketing partnership rather than a JV
  - Different profit/loss thresholds & timing concerns

How Would We Integrate With Cisco If We JV'd With Them?

- Acquire other companies first
  - Keep price lower
- Create JV with Cisco
  - New company with zero employees holding technology & royalties
  - Or New company with existing employees and technology
- Find senior exec to manage
  - Moshe Lichtman? Robbie Bach? Mark Cuban from Audionet?

Option #3: Turn the dial to "11"

- Spend $25 million licensing codecs (encode & decode)
- Turn up evangelism several notches
  - Dedicate 3 people in DRG to getting NetShow tools
  - 3 people to NetShow content evangelism
  - 3 people to filling admin, cont. mgmt gaps
- "Buy some friends"
  - $5 million investment in audionet
    - Get them to move to NetShow, aggregate NetShow content
  - $5 million grant to Apache and Xing to complete Xplatform story
- Turn up sales several notches
  - Either hire or coopt 50 sales people to sell NetShow pro
- Turn up development several notches to get way way ahead of PN
  - 40 more dev., test, pgms to form "leapfrog" team
  - Combine part of existing ActiveMovie team to build standards and tuneable codec version of NetShow

Option #4: Focus on 56.6 and Above

- Focus on "above" internet speeds
- Wait for the market to grow there
- Pro's
  - We can build a great high bit rate case and make progress in corporate accounts
  - We can position others as "unrealistic"
  - We can limit the amount of support we put into this area (resources, investments)
- Cons
  - Every company out there is using the Internet to market for the INTRANET--we'd forego that
  - Unrealistic. Even business focused content providers need to do 28.8
  - Competitors will grow Internet content to Intranets
  - We will force our customers to use multiple solutions (one for Internet, another for intranets)--and give competitors an "In"

Option #5: Cede The Streaming MM Space

- Position NetShow as a systems component only & stop selling against PN/Netscape
  - Redesign so that we provide "data passthrough" for other vendors clients and server
  - This would give us some say over protocols, and POSSIBLY file formats
- Pro's
  - We're on track to do this today :)
  - Would give us some say over wire protocol standards and API's
  - Far less resource commitment (today's would suffice)
  - Far less evangelism (would need to step up a bit more, but not radically)
- Cons
  - Would not give us any say over tools vendors or content
  - PN is positioning themselves in this space today, so unclear that we could reach aggreement
  - Miss a revenue opportunity
  - Miss command in an important market
  - Unclear we will win the platform war against PN if they are not on board

Codec Deals: Audio Technologies

- Current Issues
  - Selection criteria for media servers is most frequently audio and video quality
    - Need immediate codec licenses to be competitive
  - We risk getting into a licensing "treadmill" where we pay through the nose every 3-6 months
    - Vulnerable to licensing opportunists
      - Dolby Labs - $50 million for AC3 license
      - Voxware - $15 Million for global TwinVQ license

Codec Deals: Audio Technologies

- Phase 1: get competitive $3 million total
  - License full MPEG Layer 3 implementation
    - Existing license is for 8-24k non-real-time mono only
    - OPTION 1
      - License 8k to 64k real-time with stereo and no restrictions and create AM Filter $800k
      - Global decode, global encode to 64k
    - OPTION 2
      - License 8k to 320k real-time with stereo and no restrictions and create AM Filter if under $2 million
      - Global decode, global encode to 320k

Codec Deals: Audio Technologies

- Phase 1: continued
  - License Voxware MetaSound
    - License 8k to 24k $700k - 2.7 million
      - Complete current feature set
    - OPTION 1:
      - Get ACM Encode for NetShow and NetMeeting ($700k)
      - Get global decode as ACM and AM Filter with no restrictions
    - OPTION 2:
      - Option future enhancements and global license for MS only products ($2.7 million)

Codec Deals: Audio Technologies

- Phase 2: Leapfrog
  - Researching options, results in 2 weeks
  - FhG, Germany
    - Staff: Multimedia unit 50 people, company 12,000
    - Multimedia Institute: Audio/video compression and associated technologies
    - Products/Technologies:
      - Audio - MPEG Layer 3, MPEG AAC (Q3 97). MPEG 4 (98), software only and DSP version, large IP base
      - MMP - audio encryption
      - Video - Various standards based technologies

Codec Deals: Audio Technologies

- Phase 2: Leapfrog (continued)
  - FhG, Germany
    - Local license (NS/NM and full decode): $2 million/yr
      - Non-directed research, just licensing
    - Global license: $6 million/yr
      - Invest $6 million/year for program to stay 3 to 6 months ahead of everyone
      - Immediate utilization of research
      - Incremental releases before standards completed
      - Global licensing options
      - Directed R&D
    - Proven track record as world leader
    - Good working relationship

Codec Deals: Audio Technologies

- Phase 2: Leapfrog (continued)
  - FhG, Germany
    - Part of EEC (Can participate in EEC sponsored projects)
    - Heavily involved in EEC Mode (Music On Demand) project
  - Voxware
    - More Research required
    - Competent staff all hired within 9 months

Codec Deals: Video Technologies

- Acquisitions in option 2 put us in the lead
- Existing story is pretty good
  - MPEG 4 in our pocket
  - H.263 in Intel's (just license)
- Future Video Technologies
  - Either grow our own Video codec team with Vivo, VXtreme, and MPEG 4 teams
  - Or fund FhG to build their own video codec team with our MPEG 4 base

Recommendations

- In this order
  - #2, with Cisco co-marketing agreement
  - #2a, with Cisco JV
  - #3, SERIOUS company commitment needed
  - #1, FTC fight. Sub optimal technology choice.
  - #4, longshot
  - #5, Doom
- Codec deals
  - Global licensing options: $11 million this year, $6 million ongoing
  - Local (NS/NM only) licensing option: $3-4 million this year, $2 million ongoing

Analysis:

- Best for…
  - Content providers: 1
  - Web masters: 1
  - Corporate accounts: 2a
  - ISP's: 2a
  - SP/SI's: 2a
  - NetOps: 2a
  - Consumers: 1
- Most competitive vis a vis:
  - PN: 1,2, 2a
  - Netscape: 1,2, 2a
  - Oracle: 2a
- Most like to succeed at getting 50% or greater market share:
  - 1: short term
  - 2/2a: long term

Managing The Transition From "Free" To "Fee"

- Release NS 2.0 free
  - Gain production customer base
  - Drive ubiquity of ASF & players
  - Ship as part of IE/IIS 4.0
- Use acquisitions as excuse to move to for fee model for v.3
  - "Complete solution"
    - Adds RSVP, adds multiple server configuration, adds cross platform server, adds serious tools, adds rich x-platform tools, services, libraries, etc.
- Brand under "NetShow Pro"
  - Separate SKU & part of bundles (Olympus?)