UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549

FORM 8-K

CURRENT REPORT
Pursuant to Section 13 or 15(d) of the
Securities Exchange Act of 1934

Date of report (Date of earliest event reported): November 6, 2007

Mercury Computer Systems, Inc.
(Exact Name of Registrant as Specified in Charter)

Massachusetts	**000-23599**	**04-2741391**
(State or Other Jurisdiction of Incorporation)	**(Commission File Number)**	**(IRS Employer Identification No.)**

199 Riverneck Road, Chelmsford, Massachusetts	**01824**
(Address of Principal Executive Offices)	**(Zip Code)**

Registrant's telephone number, including area code: (978) 256-1300

N/A
(Former Name or Former Address, if Changed Since Last Report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (*see* General Instruction A.2. below):

☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)

☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Item 7.01. Regulation FD Disclosure.

The management of Mercury Computer Systems, Inc. ("Mercury") will present an overview of Mercury's business on November 6 and 7, 2007 at the American Electronics Association (AeA) Classic Financial Conference. Attached as Exhibit 99.1 to this Current Report on Form 8-K (the "Report") is a copy of the slide presentation to be made by Mercury at the conference.

This information is being furnished pursuant to Item 7.01 of this Report and shall not be deemed to be "filed" for the purposes of Section 18 of the Securities Exchange Act of 1934, as amended, or otherwise subject to the liabilities of that section and will not be incorporated by reference into any registration statement filed by Mercury under the Securities Act of 1933, as amended, unless specifically identified as being incorporated therein by reference. This Report will not be deemed an admission as to the materiality of any information in this Report that is being disclosed pursuant to Regulation FD.

Please refer to page 2 of Exhibit 99.1 for a discussion of certain forward-looking statements included therein and the risks and uncertainties related thereto, as well as the use of non-GAAP financial measures included therein.

Item 9.01. Financial Statements and Exhibits.

(d) Exhibits.

Exhibit No.	Description
99.1	Presentation materials dated November 6-7, 2007.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

MERCURY COMPUTER SYSTEMS, INC.
(Registrant)

Date: November 6, 2007

By: /s/ Alex N. Braverman
Alex N. Braverman
Vice President, Controller and
Chief Accounting Officer

EXHIBIT INDEX

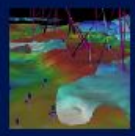
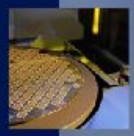
Exhibit No.	Description
99.1	Presentation materials dated November 6-7, 2007.

Exhibit 99.1

Computer Systems, Inc.
MERCURY
Challenges Drive Innovation





The AeA Classic Financial Conference November 6-7, 2007

Jay Bertelli, President, Chief Executive Officer & Chairman
Marcelo Lima, President, Visage Imaging
Bob Hult, SVP, Chief Financial Officer

Forward-Looking Safe Harbor Statement

This presentation contains certain forward-looking statements, as that term is defined in the Private Securities Litigation Reform Act of 1995, including those relating to anticipated fiscal 2008 business performance and beyond. You can identify these statements by our use of the words "may," "will," "should," "plans," "expects," "anticipates," "continue," "estimate," "project," "intend," and similar expressions. These forward-looking statements involve risks and uncertainties that could cause actual results to differ materially from those projected or anticipated. Such risks and uncertainties include, but are not limited to, general economic and business conditions, including unforeseen weakness in the Company's markets, effects of continued geopolitical unrest and regional conflicts, competition, changes in technology and methods of marketing, delays in completing engineering and manufacturing programs, changes in customer order patterns, changes in product mix, continued success in technological advances and delivering technological innovations, continued funding of defense programs, the timing of such funding, changes in the U.S. Government's interpretation of federal procurement rules and regulations, market acceptance of the Company's products, shortages in components, production delays due to performance quality issues with outsourced components, the inability to fully realize the expected benefits from acquisitions or delays in realizing such benefits, challenges in integrating acquired businesses and achieving anticipated synergies, and difficulties in retaining key customers. These risks and uncertainties also include such additional risk factors as are discussed in the Company's recent filings with the U.S. Securities and Exchange Commission, including its Annual Report on Form 10-K for the year ended June 30, 2007. The Company cautions readers not to place undue reliance upon any such forward-looking statements, which speak only as of the date made. The Company undertakes no obligation to update any forward-looking statement to reflect events or circumstances after the date on which such statement is made.

Use of Non-GAAP (Generally Accepted Accounting Principles) Financial Measures

In addition to reporting financial results in accordance with generally accepted accounting principles, or GAAP, the Company provides non-GAAP financial measures adjusted to exclude certain specified charges, which the Company believes are useful to help investors better understand its past financial performance and prospects for the future. However, the presentation of non-GAAP financial measures is not meant to be considered in isolation or as a substitute for financial information provided in accordance with GAAP. Management believes these non-GAAP financial measures assist in providing a more complete understanding of the Company's underlying operational results and trends, and management uses these measures, along with their corresponding GAAP financial measures, to manage the Company's business, to evaluate its performance compared to prior periods and the marketplace, and to establish operational goals. A reconciliation of GAAP to non-GAAP financial measures discussed in this presentation is contained in the company's First Quarter Fiscal Year 2008 earnings release, which can be found on our website at www.mc.com/mediacenter/pressreleaseslist.aspx.

Mercury offers more than 20 years' experience in designing and delivering high-performance computing systems and software, for a broad range of image- and data-intensive applications, to customers around the world.

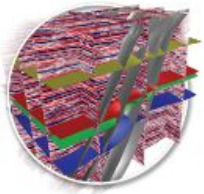
Embedded Computing

Semi Industry

Telecommunications

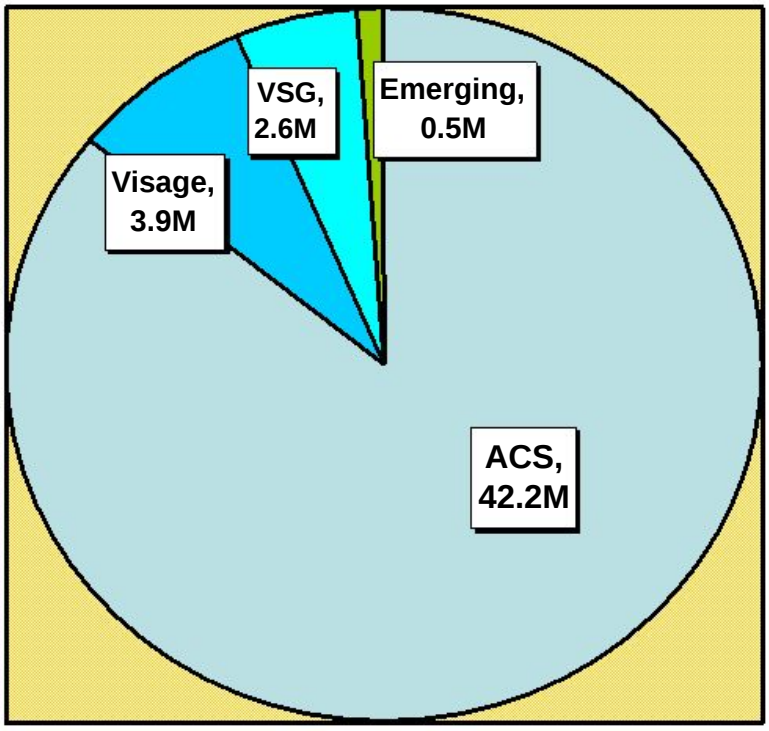
Defense

Life Sciences



Energy

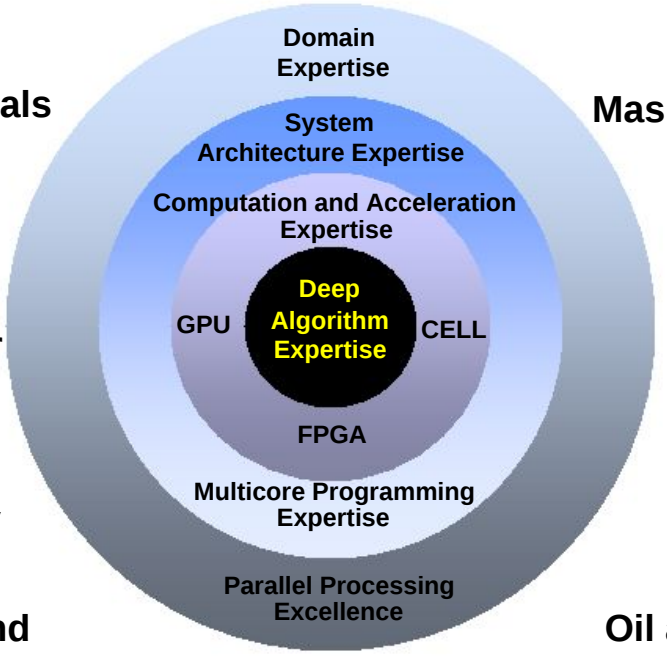
Q1 FY08 Revenue Mix: $49.2 million



Investment Highlights

- **Data explosion across multiple markets**
- **Mercury uniquely positioned to implement multi-core processing systems**
- **Strategic acquisitions starting to produce**
- **Developing applications for PACS / Radiology market using advanced visualization technology**
- **New alignment of internal competencies will drive new business opportunities in Core**
- **Recent cost-reduction initiatives will improve margins**

We combine our deep technical expertise and extensive knowledge of the science behind our customers' applications, to deliver reliable performance and sustained value.



Radar and signals intelligence

Data exploitation, smart weapons, imagery and sonar

Medical imaging and biotechnology

Engineering and simulation

Mask generation

Wafer inspection

High-end baggage scanning

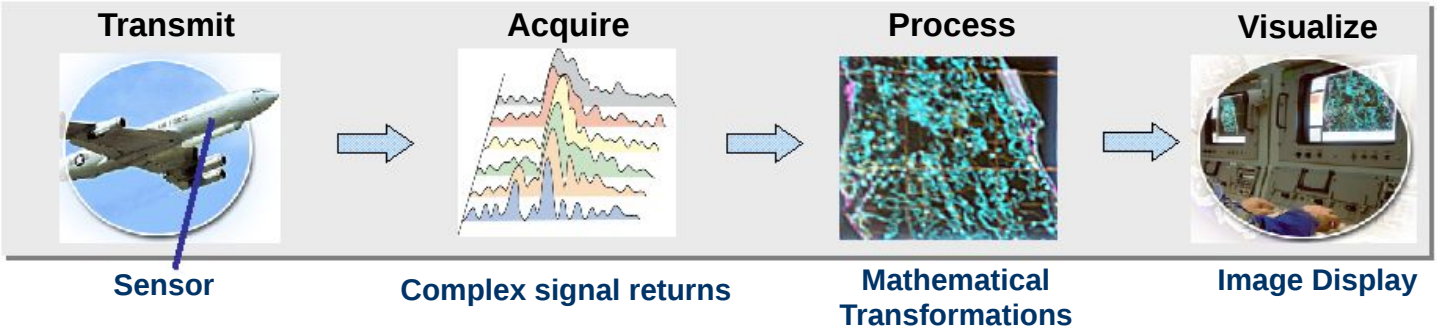
Telecommunications

Oil and gas exploration

UAV command & control

Our domain expertise spans the entire data stream

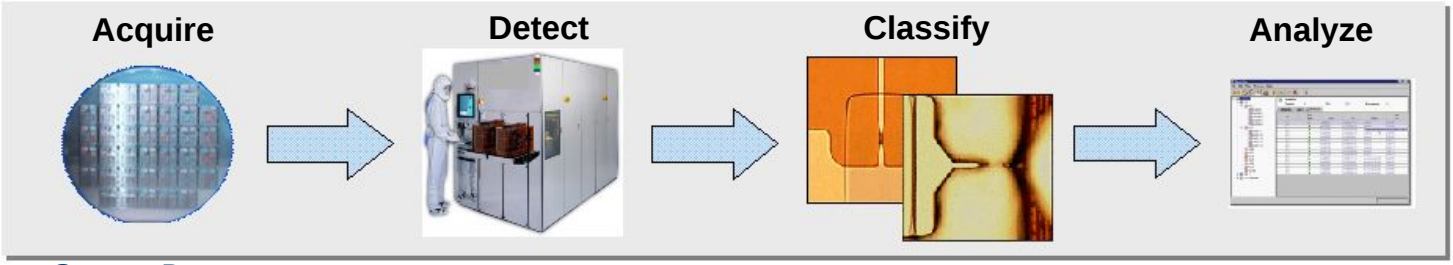
Example: acquiring sensor data from a defense application



- Sensor streaming
- Scalable within the application
- Real-time signal processing
- Embedded (real estate, environmental, cooling constraints)

Our acceleration expertise spans diverse applications – all of which require faster, more reliable results

Example: accelerating image processing in semiconductor wafer inspection



Sensor Data- Scanned Wafers or Reticles

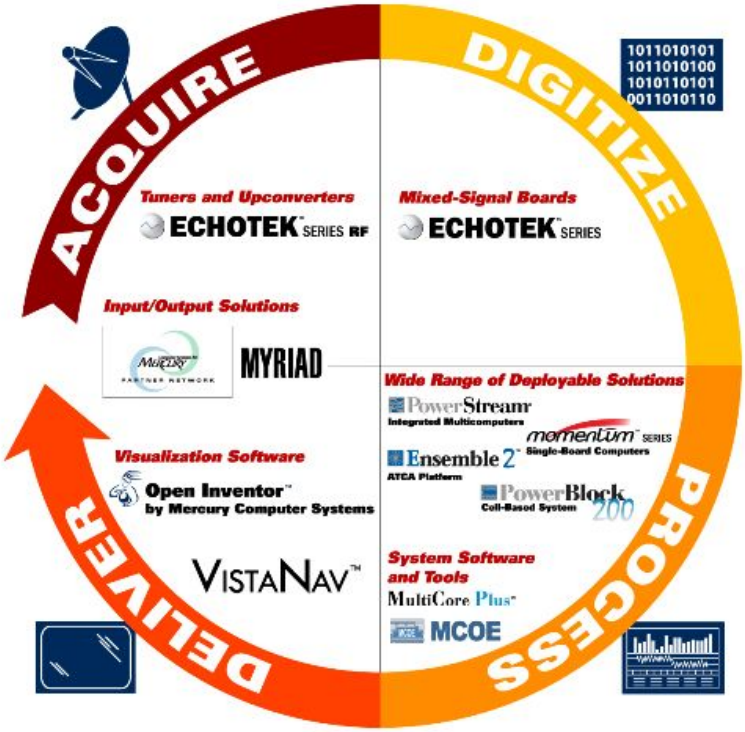
Image Correction & Defect Detection

Offline Classification & Analysis

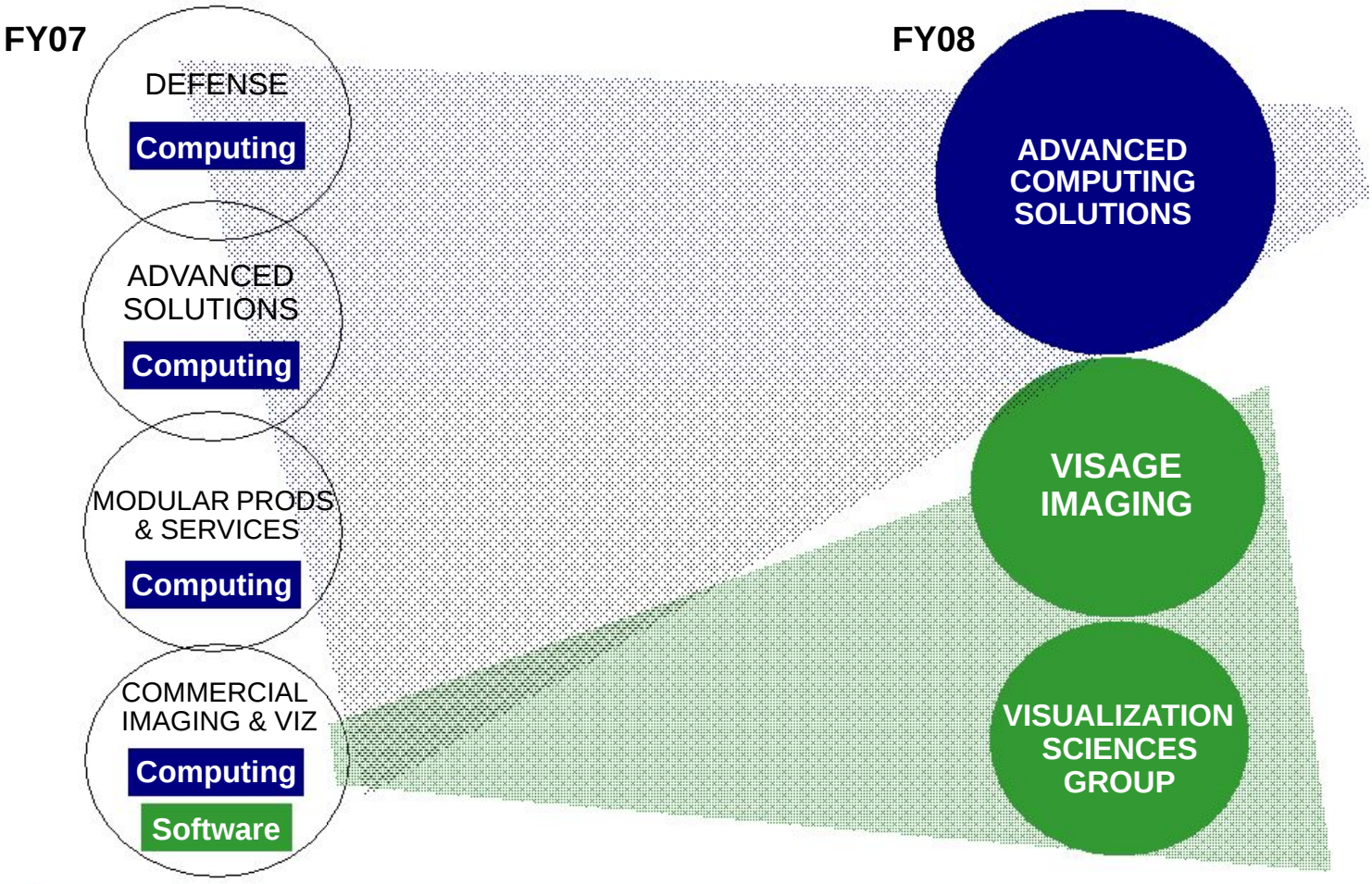
- Searching for defects on silicon wafers or reticles
- Scalable compute, streaming I/O, and interconnect bandwidth
- Enabling customer algorithm performance enhancements
- Software-programmable solutions

Our products span the entire signal processing chain

From RF to Visualization. Air to Conduction-Cooled. Boards to Systems.

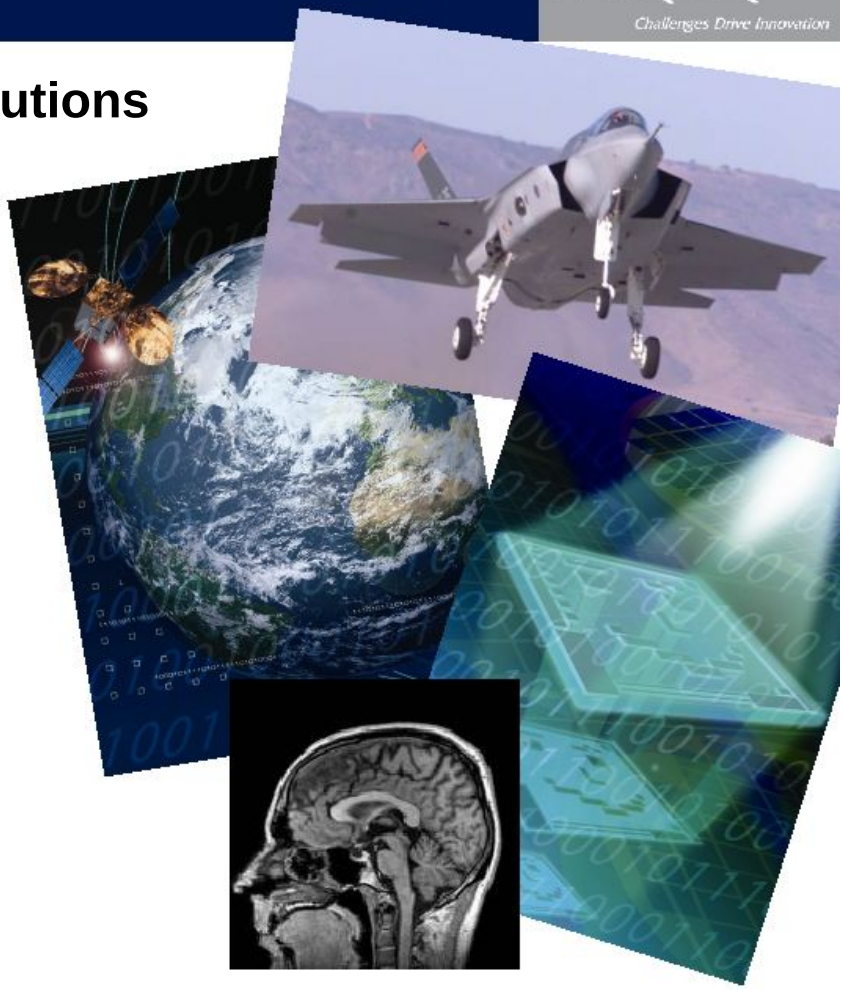


- Modular boards and integrated systems
- Robust software and tools
- From open-standard COTS to custom
- Ruggedization
- Scalable architectures
- Comprehensive services
- Visualization



Advanced Computing Solutions

ACS focuses on specialized, high-performance computing solutions that leverage Mercury's capabilities in sensor computing, computational acceleration, and delivery of complex system-level solutions.



EXAMPLE SEGMENTS

- Aerospace and defense
- Semiconductor
- Telecommunications
- Medical imaging

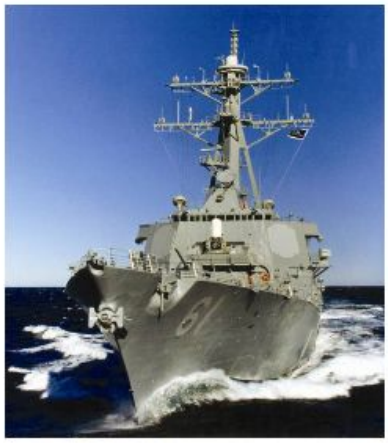
1QFY08

- Revenue: $42.2 million
- Non-GAAP Operating Income: ~$4.2 million
- No. of employees: ~460

- GM: ~high 50s

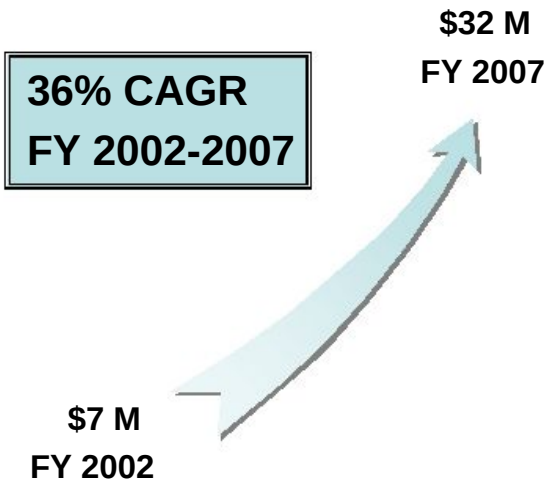
Mercury Well-Positioned in Defense

- **Strong customer base**
  - **20 years of experience**
  - **COTS model**
- **Technology leadership**
  - **Broadest range of products**
    - RF, Data Acq, Processing, Visualization
  - **Deployed on:**
    - Ships, UAVs, Fighters, Ground Vehicles, Airborne ISR Platforms
- **Broadening market portfolio**
  - **Signals intelligence**
  - **Net-centric warfare**
    - Wideband Data Links
  - **UAVs**
    - Synthetic Vision
  - **Sonar**
  - **Smart weapons**
  - **Ground based radar**



Semiconductor Market

Strong Organic Growth

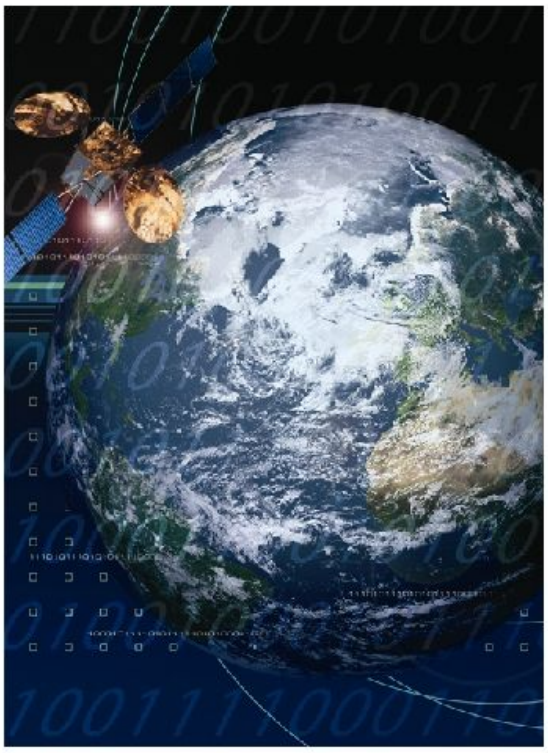


Mercury Semiconductor Segment Revenue
FY 2002 – FY 2007

- **Supplying application-enabling solutions to leading OEMs**
- **Growth driven by production design wins**
  - Mask generation
  - Wafer inspection
  - Reticle inspection
  - EDA market

Communications

- **AdvancedTCA DSP and FPGA compute solutions**
  - **Satellite ground stations for Ancillary Terrestrial Component (ATC)**
  - **Wideband Data Link Modems for Net-centric Warfare (HDR-RF modem)**
  - **System development platforms for wireless infrastructure applications**



Visualization Sciences Group

VSG focuses on the development and distribution of software developer toolkits and 3D application software for volume rendering of very large data sets.

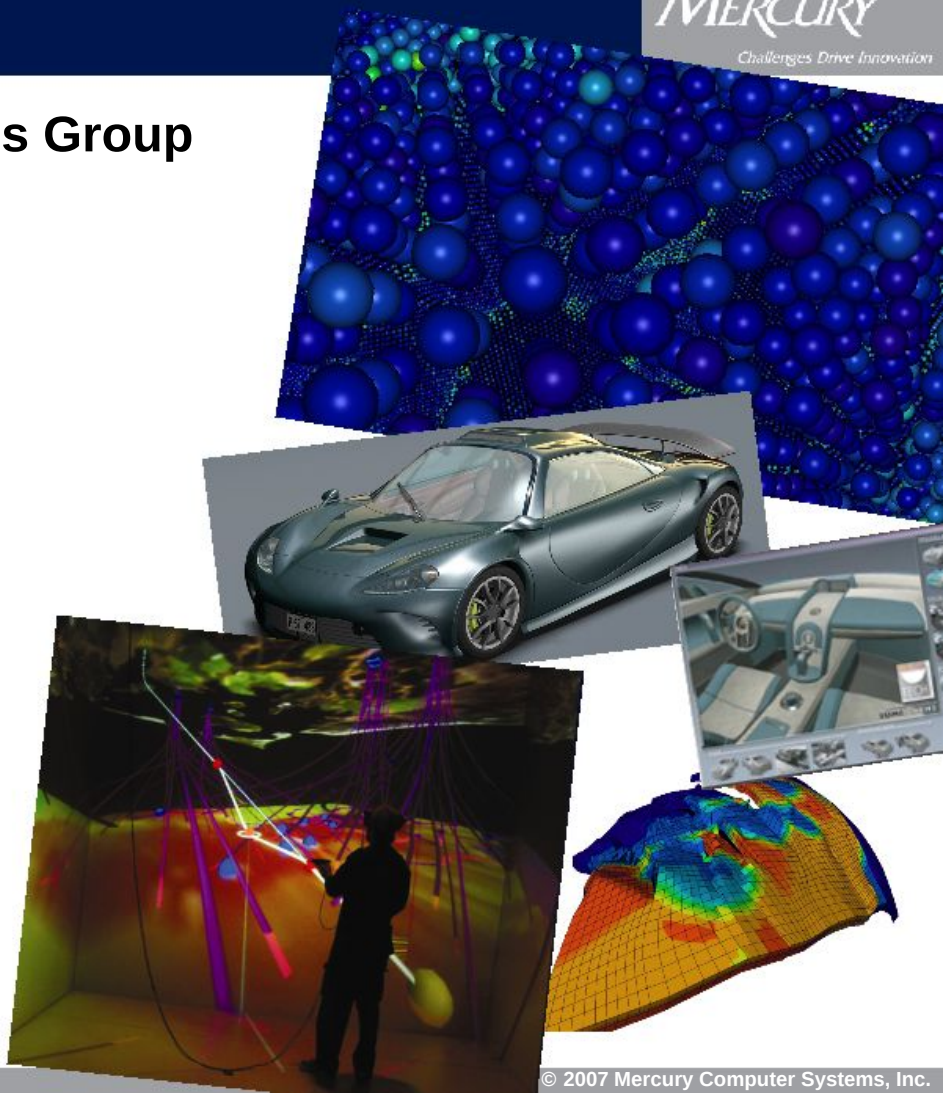
EXAMPLE SEGMENTS

- Geosciences
- Engineering and manufacturing
- Material sciences
- Other industrial and scientific domains

1QFY08

- Revenue: $2.6 million
- Non-GAAP Operating Income: ~$0.6 million
- No. of employees: ~49

- GM: ~high 80s

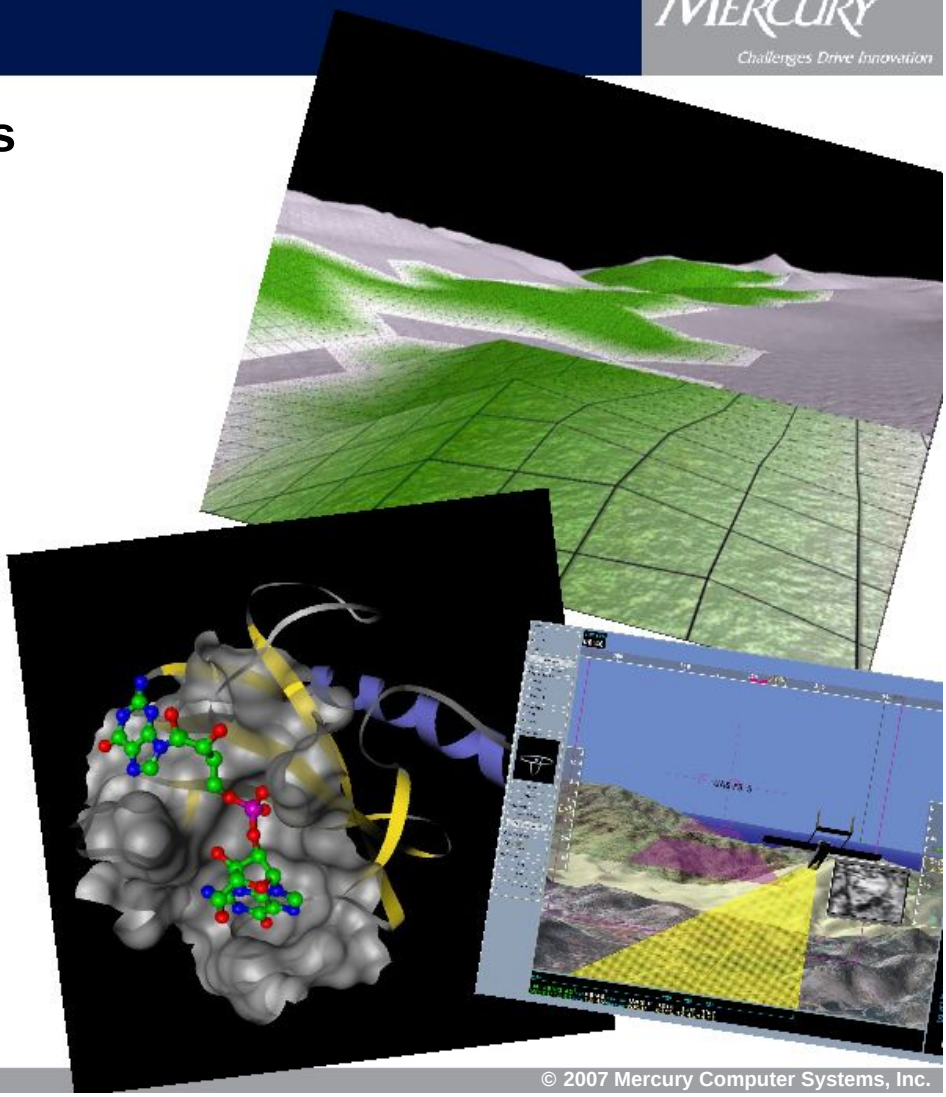


Emerging Businesses

Mercury's emerging businesses are focused on cultivating new opportunities that can benefit from Mercury's deep optimization expertise and services.

EXAMPLE SEGMENTS

High-performance computing and visualization in biotech, aircraft navigation, intelligence and homeland security



Merc Federal Strategy

- ***Embrace and expand existing federal COTS business*** **by repositioning ourselves in the critical path of our prime vendors and achieve new levels of COTS leverage.**
- ***Initiate new business opportunities*** **throughout the national security community using existing competencies and solutions and strategic partnering.**
- ***Establish a new solutions-based services model*** **that sells directly to government customers.**

Visage Imaging, Inc.

Mercury's wholly owned subsidiary focuses on the development and distribution of advanced visualization and PACS (picture archival and communications system) solutions, and other 3D software solutions in the life sciences segment.

1QFY08

- Revenue: $3.9 million
- Non-GAAP Operating Income: ~($1.9 million)
- No. of employees: ~109

- GM: ~mid 60s

VISAGE IMAGING™
Visioneering Science for Life

VISAGE IMAGING

Visioneering Science for Life

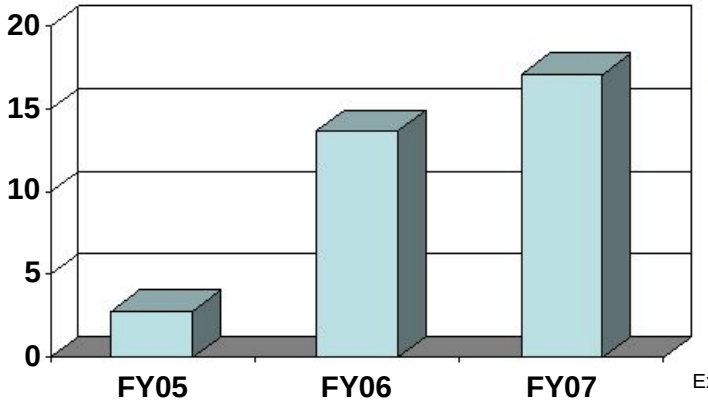
Marcelo Lima, President

Visage Imaging at a Glance

Provider of Advanced Visualization Software and Systems to Medical Imaging Markets

- Wholly owned subsidiary of Mercury Computer Systems
- 110 associates, in four centers (U.S. and EU)
- Sell through OEM, dealers, and direct

FY Revenues ($MM)



Excludes Legacy Medical Products

Why Visage Imaging?

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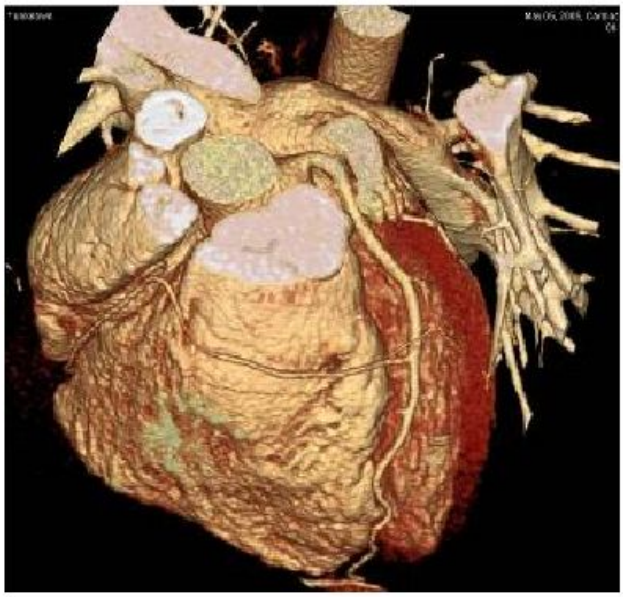
Visioneering Science for Life

Acceptance of advanced visualization makes 3D a catalyst of change in the imaging technology market

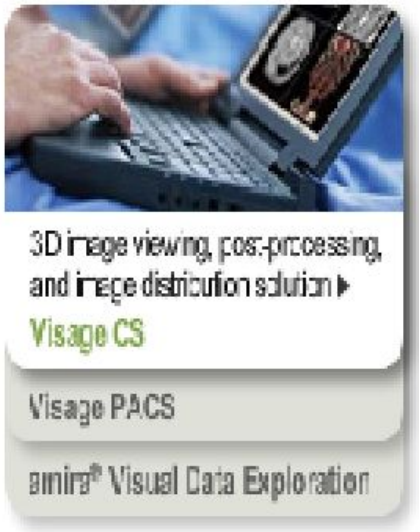
- Vertical market focus
- Operational efficiency
- Shareholder value creation



2D/3D Anywhere, Anytime

Visage Imaging Products

	OEMs	Dealers & Distributors	Direct (end-user)
Visage RT	X		
Visage VR	X		
Visage WS	X		
Visage PACS	X	X	X (USA)
Visage CS	X	X	X (USA)
Amira	X		X (research)
Professional Services	X		
Embedded Systems	X		X



A Selection of Our Customers per Market Segment

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Medical Imaging

Surgical & Dental

Microscopy & Pharma

U.S. Medical Imaging Market

- 5,000 Hospitals
- 5,000 Diagnostic Imaging Centers
- 50,000 Radiologists
- 750,000 Physicians
- 50,000,000 Imaging Examinations per Year

Data Explosion Driving New Imaging Technology

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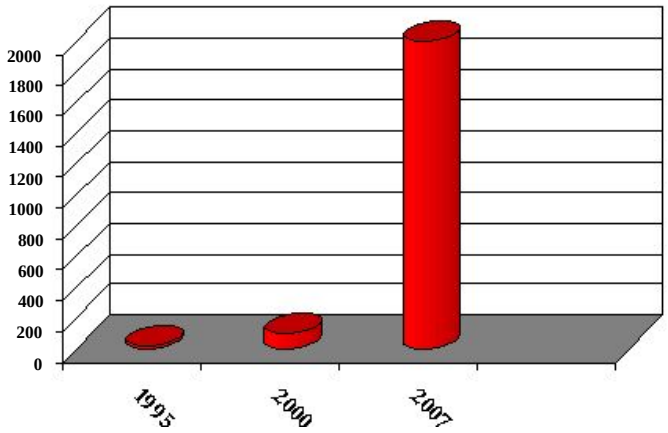
- Data sets of up to 1GB+/study
- Enormous retrieval and loading times
- 1000+ slice studies cannot be read off film or by scrolling through 2D slice viewers
- Techniques such as MPR, slabs, or volume rendering increase imaging efficiency and accuracy



Typical CT Exam

1995 – 20 Images
2000 – 100 Images
2007 – 2,000 Images

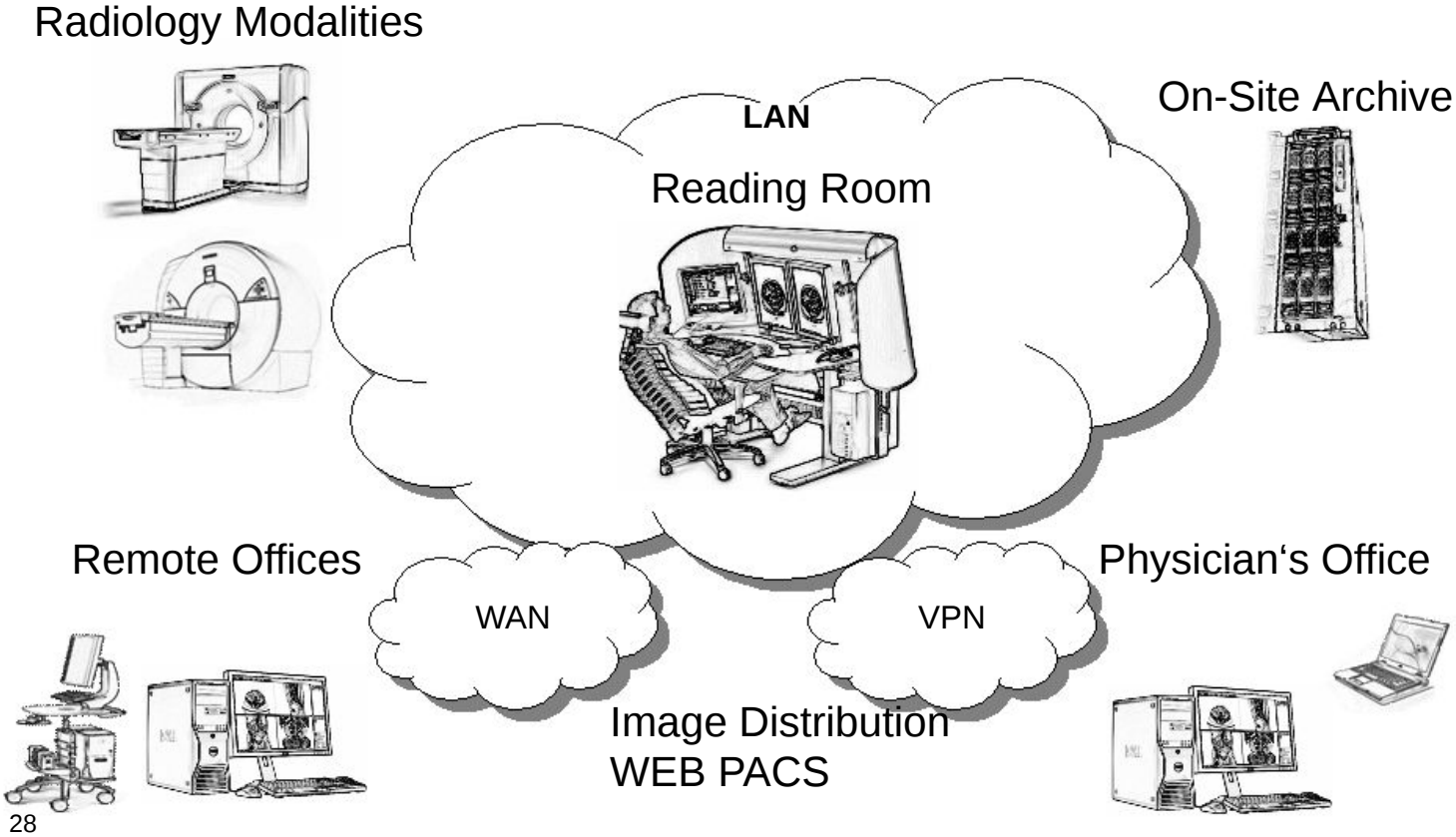
Take Advantage of the 3D Nature of Data

- Improved diagnostics
- Better, faster reading
- 3D additional revenue source

Visage Imaging's Strategy

- Focus on:
  - PACS appliance for advanced visualization (thin-client)
  - PACS appliance for image distribution (Web)
- Multi-channel approach:
  - Leverage large PACS OEMs at top end of U.S. market
  - Enter direct sales in U.S., focus on small hospitals and clinics
- Build COTS-based scalable thin client server for enterprise imaging
- Learn from amira applications
- Partner/license from leading clinical sites

What is PACS ?
Picture Archival & Communications Systems



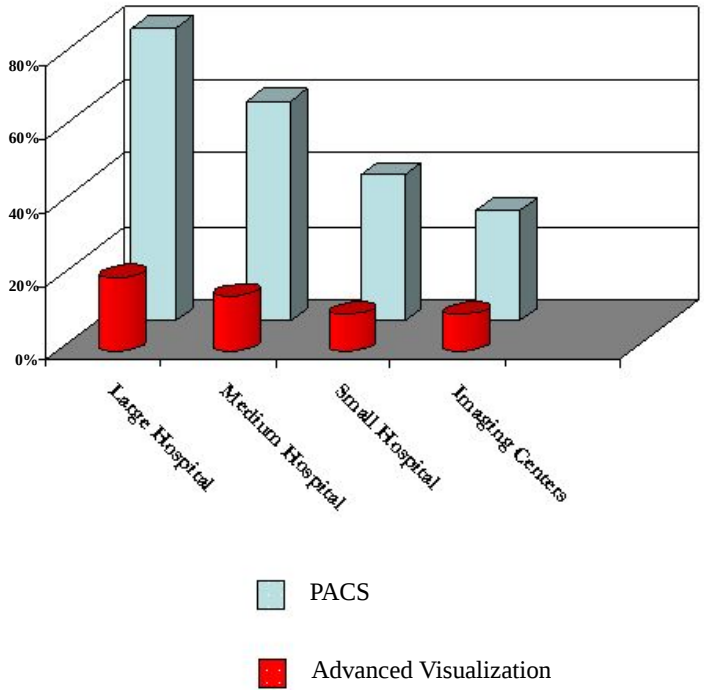
U.S. PACS Market

- Revenues
  - $1.10 billion in 2005
  - $1.77 in 2012
  - CAGR 7%
- Replacements expected to represent 36.7% of PACS contracts and 56.7% of total market revenues in 2012
- Visage addresses faster-growing Web and Advanced Imaging applications within this market
- Web PACS image distribution is estimated at $100M in 2007

Source: Frost & Sullivan study, 2006 – " U.S. Turnkey Radiology Picture Archiving and Communications (PACS) Markets "

Opportunity in Advanced Visualization PACS Appliances

- Turnkey U.S. radiology PACS market approaching maturity
- Growth now focused on replacement sales, community-based healthcare facilities, and the imaging center market
- Synergy between markets for PACS, RIS, ***advanced visualization,*** reporting, ***and clinical software tools***
- ***Opportunity to provide advanced visualization solutions that will help OEMs drive replacements in the PACS and RIS installed base***



What is Advanced Visualization?

VISAGE IMAGING
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- Image processing algorithms and clinical applications packages
- Performing 3D image reformations (MIPs, MPRs), various rendering methods, measurements and calculations on volumes, time and flow representations (4D)
- Historically packaged into an individual workstation since PACS reading stations cannot offer the horsepower required

Advanced Visualization Market Drivers

- Advances in imaging technologies are making advanced visualization a necessity
  - CT
  - MR
- Client/server technology enabling 3D
  - More powerful servers for immense processing requirements of 3D
  - Thin-clients enable enterprise-wide deployment and Web-based access to advanced technology
- New applications and paradigms, driven by 3D, enhancing and expanding the benefits of radiology
  - PACS integration key to enhancing the workflow for 3D imaging
  - Clinical applications are evolving into highly specialized modules

Source: Frost & Sullivan study, 2007 - “North American 3D/4D Visualization for Medical Imaging Markets”

3D/4D Growth

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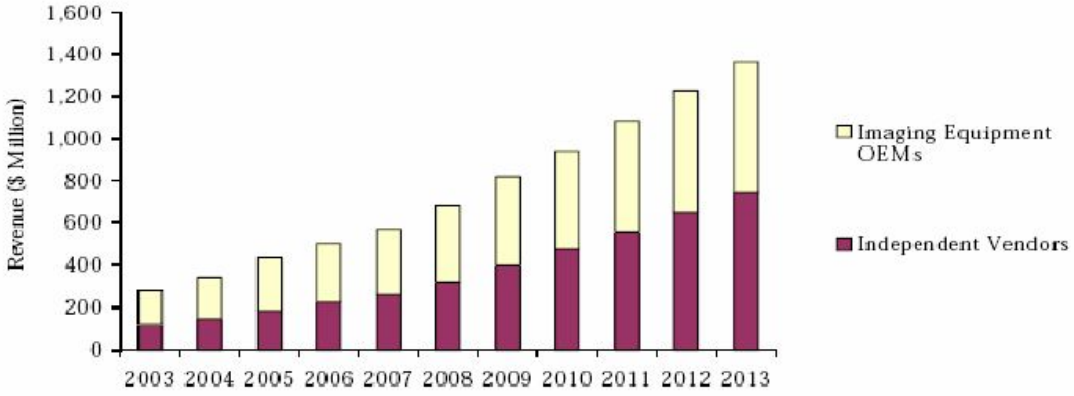
North American 3D/4D Visualization for Medical Imaging Market expected to grow at a CAGR of over 15% and to over $1 billion by 2011

Advanced 3D/4D Visualization for Medical Imaging Markets: Total Revenue Forecasts by Tier of Competition (North America), 2003-2013



Note: All figures are rounded; the base year is 2006. Source: Frost & Sullivan

Source: Frost & Sullivan study, 2007 - "North American 3D/4D Visualization for Medical Imaging Markets"

Visage Has Most Complete Solution of Major Independent Vendors

Market Share*	Reconstruct	Visualize	Distribute	Archive
Visage Imaging 5%	X	X	X	X
Vital Images 32%		X	X	
TeraRecon 28%	X	X	X	
Barco-Voxar 19%		X	X	

Source: Frost & Sullivan study, 2007 - “North American 3D/4D Visualization for Medical Imaging Markets”

Visage Imaging's Advantages

- Scalable software & COTS platforms
  - Fast time-to-market, ease of upgrades
- PACS and RIS integration
  - Diagnostic workflow
- Image quality & speed
  - Algorithms and GPU know-how
- amira research installed base
  - >3500 universities worldwide
- Web PACS installed base
  - >1300 sites worldwide

The Pain Points in the Imaging Chain

VISAGE IMAGING
Visioneering Science for Life

Ask the doctor…

"why isn't this software available everywhere?"

"the studies take forever to load"

"I wish I could review this in my office or from home"

"I can't find the data on this workstation"

"our network is too slow"

"this machine is too slow for 3D"

"have I sent my results to everyone?"

"the 3D images prepared by the tech are not sufficient to judge this case"

Ask the IT people…

"how can we keep pace with all the new 3D technology?"

"we cannot replace all our existing PCs"

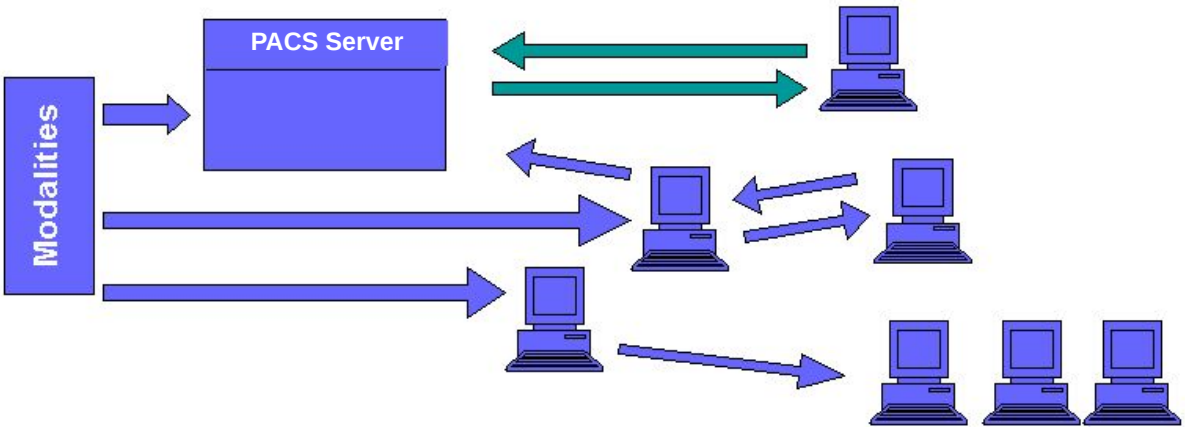
"the DICOM traffic kills our network"

"we need easy, web-based deployment"

"the same reading software must be available everywhere throughout the hospital"

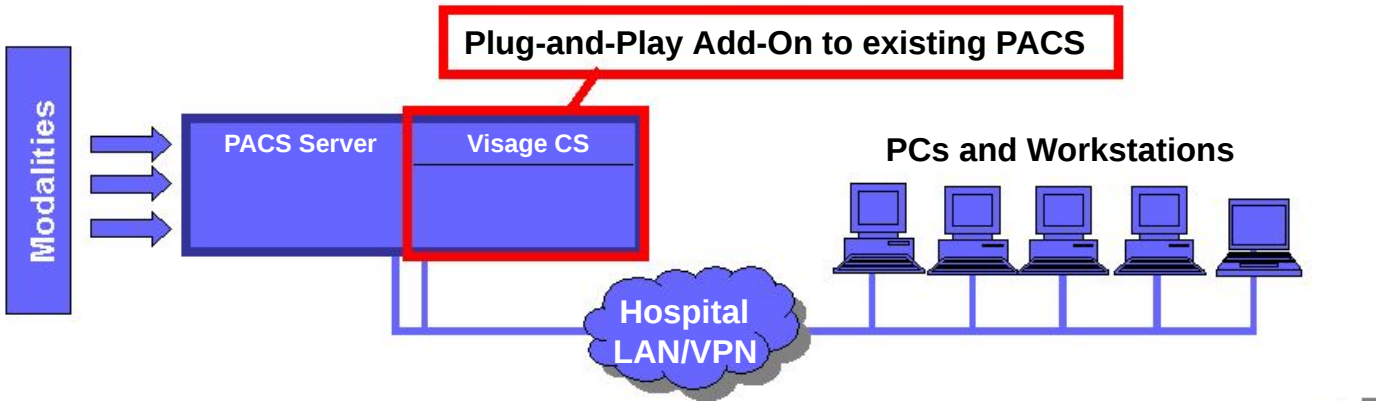
"cannot ensure integrity of all the distributed pieces of data"

Isolated Workstations Aggravate the Problem



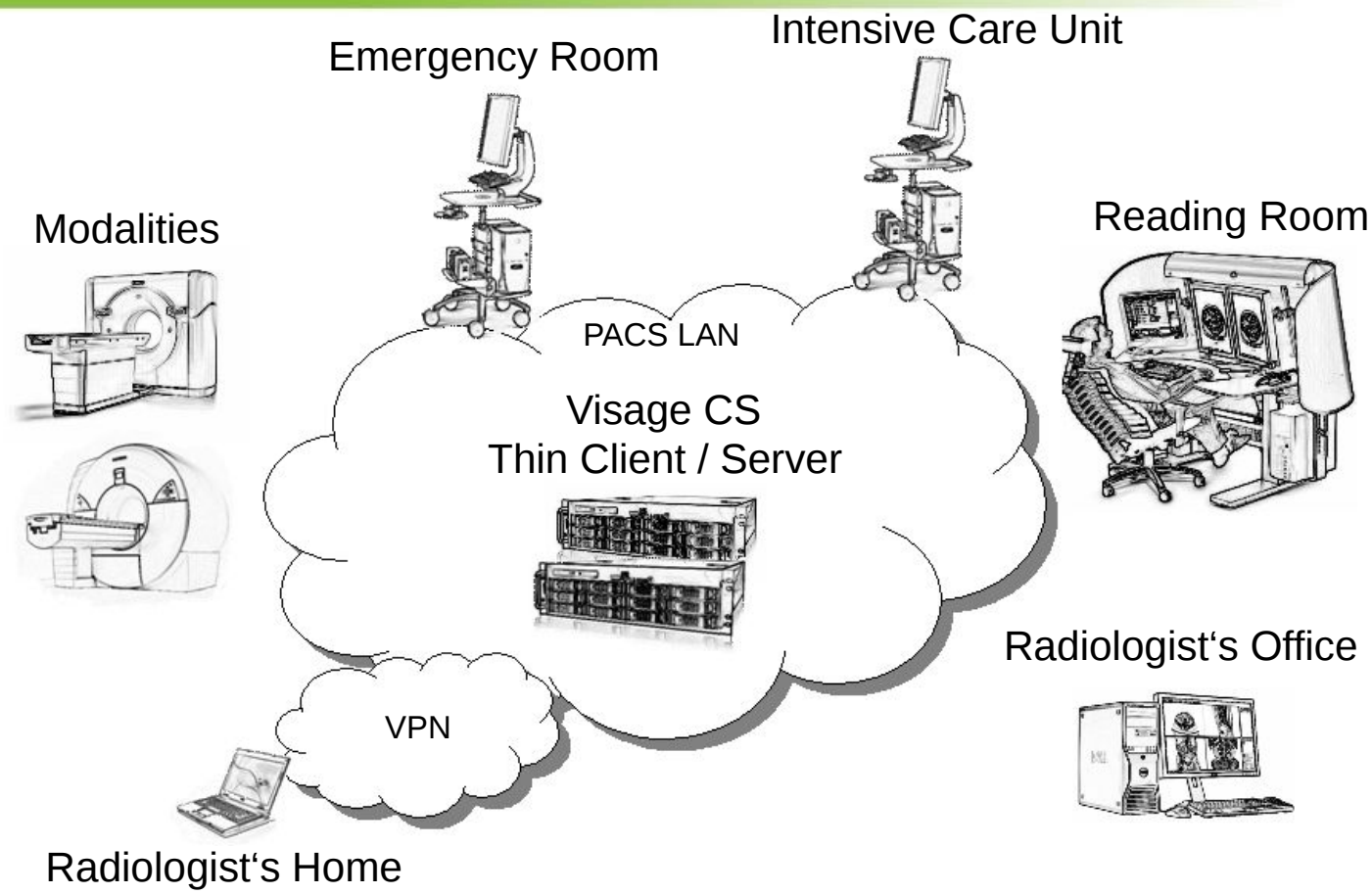
- Data inconsistencies
- Sending data over the network multiple times
- Missing interfaces with RIS/HIS
- Workstation hardware quickly outdated
- Workplace becomes the bottleneck

Visage CS: Thin, Fast, and Fully Integrated



- Process data sets on scalable server built with standard components
- Integrate with PACS and RIS on front end and back end
  - One consistent central data storage
- Local and remote access for multiple users on any client PC, anytime, anywhere
- Blazingly fast 2D, 3D, and 4D viewing, post-processing, and primary interpretation for all modalities saves time
  - “Instant” access - initial display of 2,000 slice series in < 2 seconds
- Physician can use all the tools he/she wants when needed and where needed
- Additional technical and professional reimbursement

Usage Example: Hospital PACS



Cardiac CT Analysis on Thin Clients

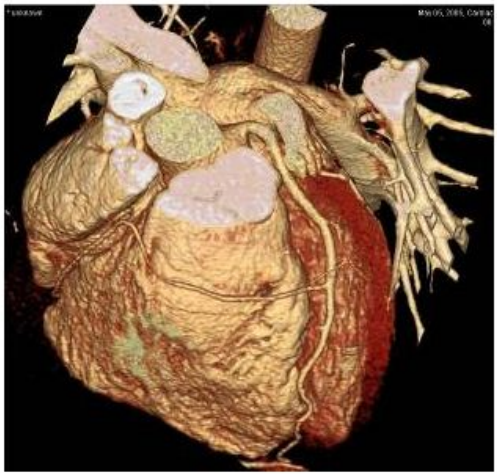
VISAGE IMAGING
Visioneering Science for Life

From CT Scan to diagnosis of coronary artery disease in less then 10 minutes

CT Scan of heart in 36 seconds!

More than 3,000 slices to read!

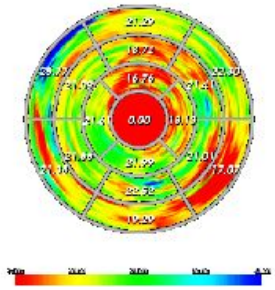
Let the Thin 3D Client help! Why look at 3,000 slices when you could look at the entire heart in 3D!



With the CS Server, the radiologist or cardiologist can view, evaluate and diagnose rapidly from anywhere in the hospital or office.

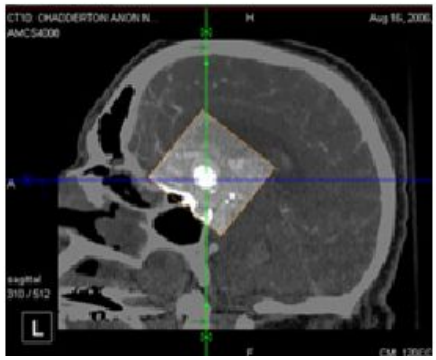
Functional assessment of multi-phase Cardiac CT

- Automatic segmentation of left ventricle
- Volumetric analysis
- Ejection fraction, stroke volume, cardiac output, etc.
- Wall motion analysis
- AHA-style bull's eye representation



3D Viewing of Aneurysm and Vessels

- Application example:
  - Cerebral aneurism
  - Have a closer look at the base of the aneurism to plan coiling
- Features:
  - Quick navigation and flexible reformatting
  - Quick 3D viewing of volumes of interest (crop box)
  - Flexible Maximum Intensity Projection (MIP)
- Benefits:
  - Quick and accurate treatment planning



Example: Aneurysm (3D MIP)

VISAGE IMAGING
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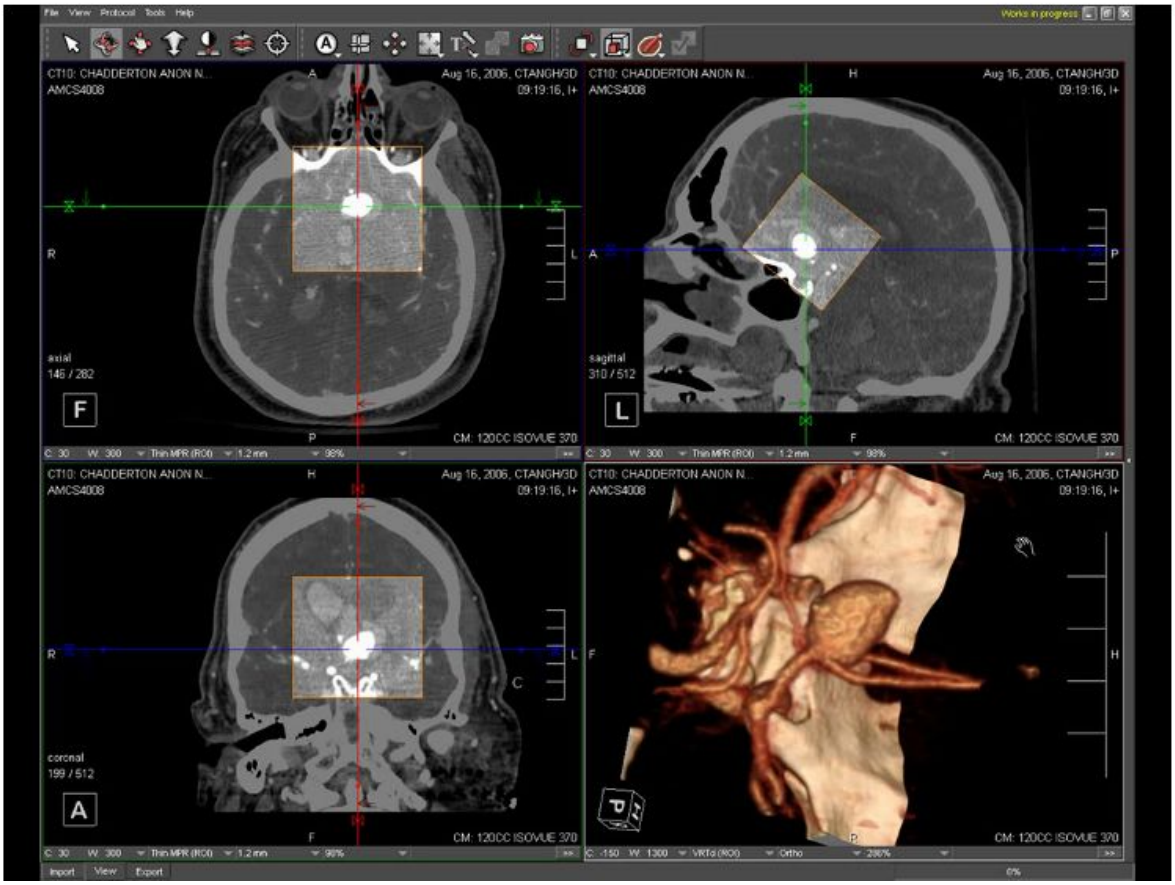

Importance of 3D in Many Areas of Medicine Increasing

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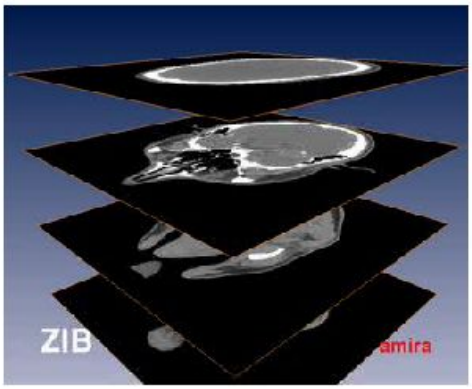
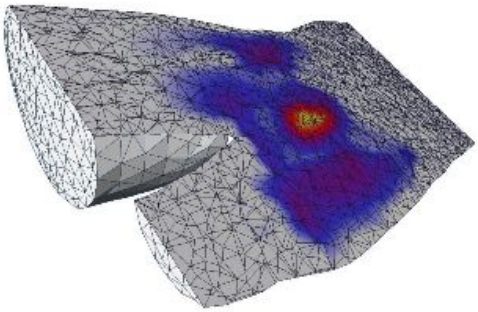
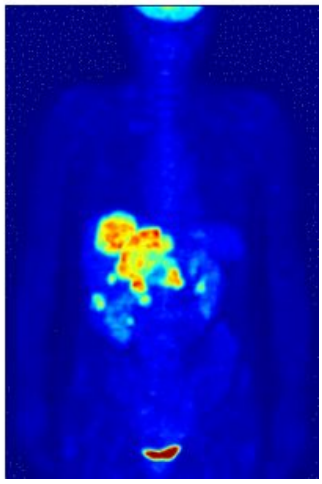
Surgical Simulation

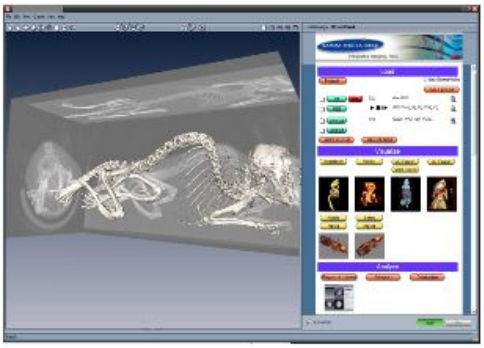


Treatment Planning

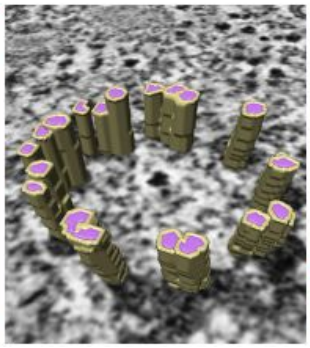


Molecular Imaging

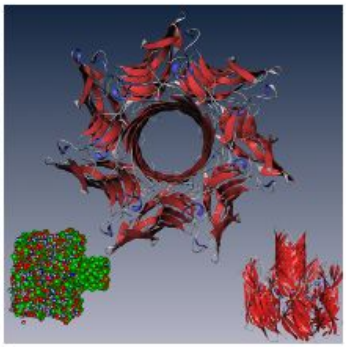




Preclinical Imaging



Cell biology



Drug Design

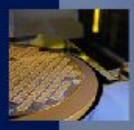
Thank you...

- ... for your time and attention!
- Questions…
- Learn more:

Computer Systems, Inc.
MERCURY
Challenges Drive Innovation

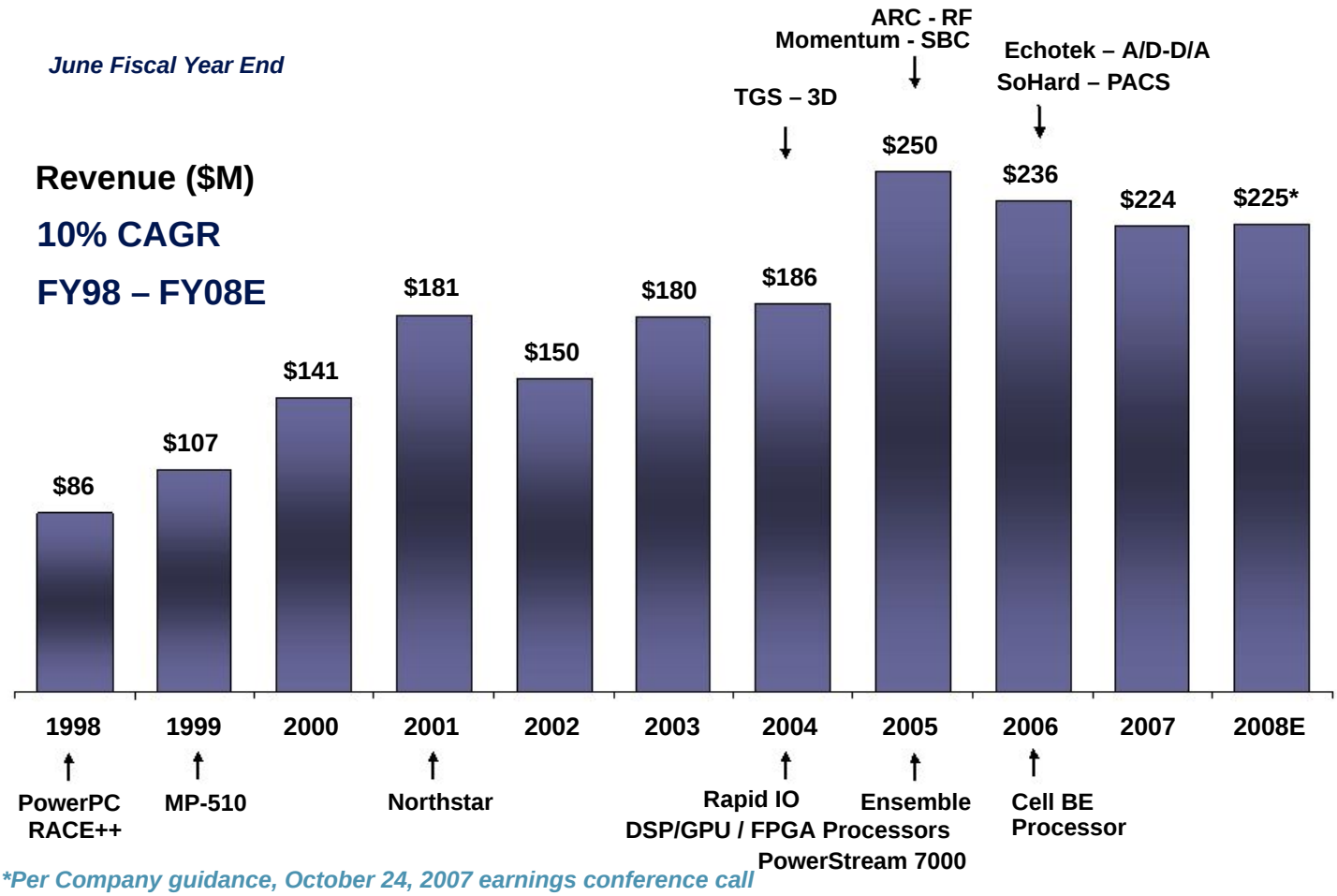




Financial Overview

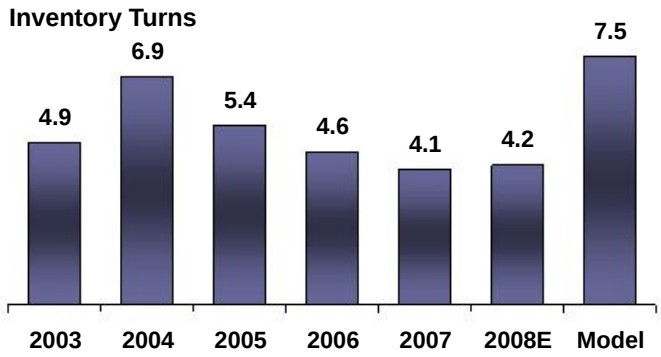
Revenue Follows Technology Cycles



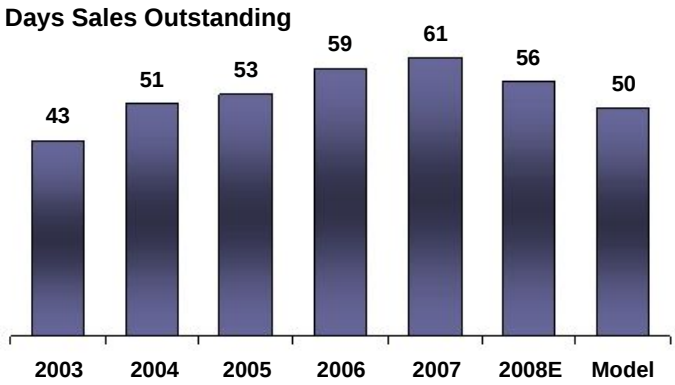
**Per Company guidance, October 24, 2007 earnings conference call*

Focus on Working Capital

- **Supply chain transformation**
  - Competitive advantage for Mercury and customers



- **Customer satisfaction**
  - DSO target 50 days



Strong Balance Sheet

Historically strong balance sheet

Net cash positive: $34M

Projected FY08 capex of $7 million

Positive free cash flow in FY08

Quarter ended September 30, 2007	
Cash and Equivalents	$159
Total Current Assets	$206
Total Assets	$356
Total Debt *	$125
Total Liabilities	$185
Stockholders' Equity	$171

- ***2% convertible senior notes offering due 2024***

Commitment to Timeless Business Model

Non-GAAP	FY05	FY06	FY07	Guidance FY08*	Timeless Business Model
Revenue	100%	100%	100%	100%	**100%**
Gross Margin	66%	62%	56%	59%	**60+%**
SG&A	29%	34%	36%	33%	**Mid 20%**
R&D	20%	25%	26%	24%	**High Teens**
Income from Operations	17%	3%	(6%)	2%	**16-18%**

Approaching model!

Costs Reduced

**Per Company guidance, October 24, 2007 earnings conference call*

Q2 Fiscal Year 2008 Guidance

	Quarter Ending December 31, 2007	
Revenues ($M)	**$51**	
	GAAP	**Non-GAAP**
Gross Margin	**58%**	**58%**
EPS	**$(0.37)**	**$(0.05)**

- **Impact of equity-based compensation costs related to FAS 123(R) of approximately $3.0M excluded from non-GAAP**
- **Acquisition-related amortization of approximately $1.8M excluded from non-GAAP**

Notes:

1) ***Figures in millions, except percent and per share data which includes adjustment for contingent convertibles, in accordance with GAAP***
2) ***Company guidance, October 24, 2007 earnings conference call***

Fiscal Year 2008 Guidance

	Fiscal Year Ending June 30, 2008	
Revenues ($M)	**$225**	
	GAAP	**Non-GAAP**
Gross Margin	**59%**	**59%**
EPS	**$(0.54)**	**$0.33**

- **Impact of equity-based compensation costs related to FAS 123(R) of approximately $11M excluded from non-GAAP**
- **Acquisition-related amortization of approximately $7M excluded from non-GAAP**

Notes:

1) ***Figures in millions, except percent and per share data which includes adjustment for contingent convertibles, in accordance with GAAP***
2) ***Company guidance, October 24, 2007 earnings conference call***

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