Agilent‘s Direction in Lab Informatics

Tony Owen
Senior Director of Marketing
Software & Informatics Division

April, 2010

Agilent Technologies

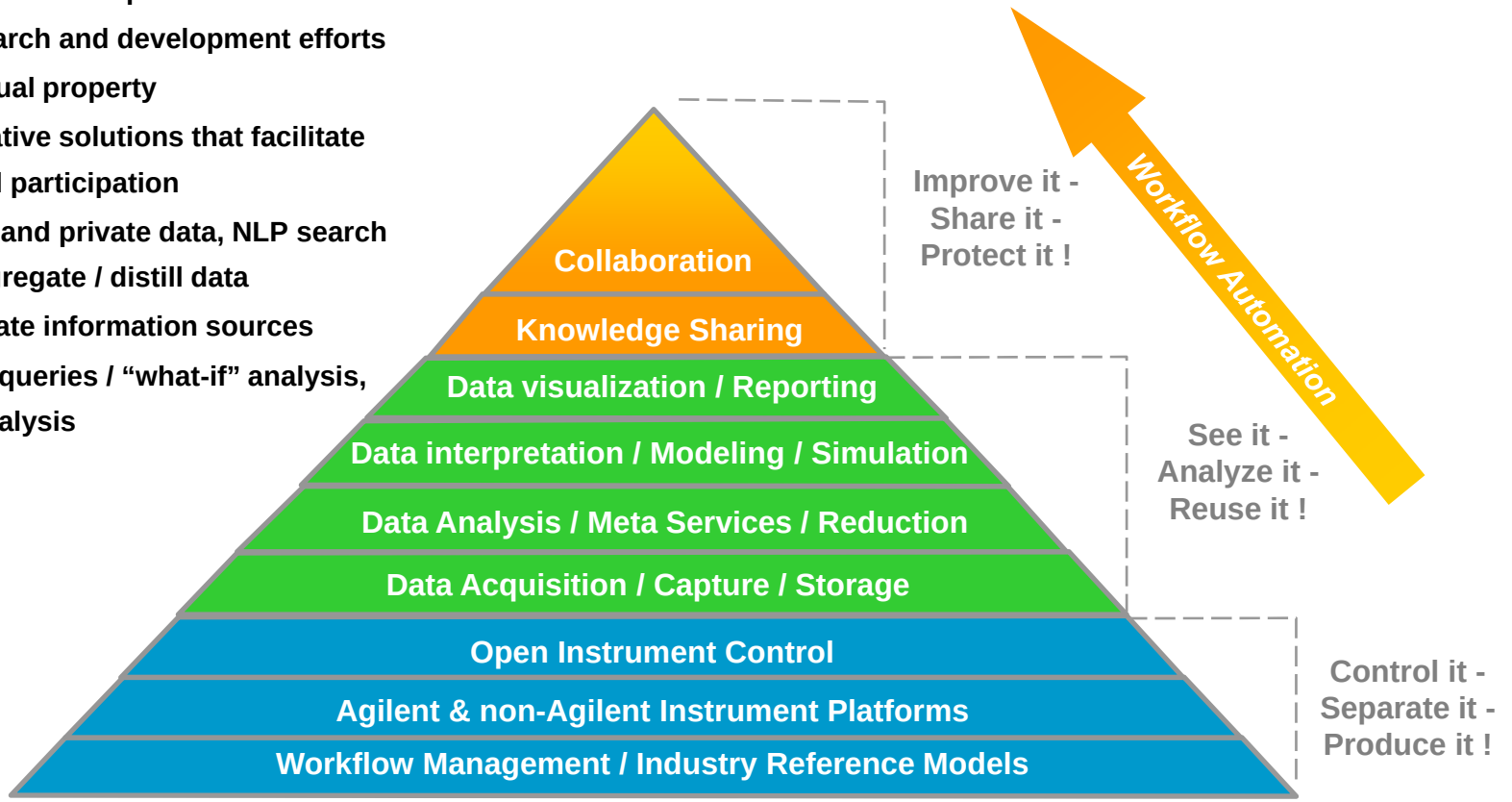
Agenda

- **Software and Informatics Vision**
- **Analytical Laboratory Software Landscape and User Needs**
- **OpenLAB Strategy**
- **OpenLAB Products**
- **Summary**

Customer Drivers and the Information Hierarchy

Critical High Level Customer Drivers

- Solve scientific business problems
- Accelerate research and development efforts
- Protect intellectual property
- Foster collaborative solutions that facilitate cross-functional participation
- Integrate public and private data, NLP search capabilities, aggregate / distill data
- Integrate disparate information sources
- Support ad hoc queries / “what-if” analysis, unstructured analysis



Agilent's Software & Informatics Vision

Data Systems Directions

	Yesterday	TODAY	Tomorrow	Future
Attributes	**Special Purpose** • 1:1 Instrument / data system relationship • Expensive ongoing administration • Creates data islands • Higher replacement costs	**Shared Services** • Desktop - Workgroup - Enterprise scaling • Content management (text / image / object) • Reporting / Search (OLIR) • Instrument control (rc.NET) • Workflow automation	**Web Services** • Internet is UI • Anywhere / anytime access • Integration by default • Remote services • Brokered tasks • Distributed workflows • Extended shared services • Business Process Management	**Collaboration Services** • Global identity Management • Collaboration tools (Discussion forums / RSS feeds / visualization) • Social Networking (Wiki, Blogs, etc.) • Information sharing / reuse • Natural language processing • Business application monitoring
Customer Benefits	• Lower initial deployment risk • Lower introduction fixed-costs • Perhaps simpler deployment	• Infrastructure leverage • Linked systems • Central administration • Lower cost / seat than Special Purpose systems	• Pervasive (common) UI • Data storage / federated search / reporting optimization • Process Automation (SOP) • Central policy management	• Higher information utility • Greater collaborative sharing • Improved information quality (contextual) • Predictive analysis capability • Operation without boundaries (disciplines, depts., locations, entities) • Cross-entity outsourcing

Building the Future

Increasing Value

Agenda

- Software and Informatics Vision
- **Analytical Laboratory Software Landscape and User Needs**
- OpenLAB Strategy
- OpenLAB Products
- Summary

Analytical Laboratory Software Landscape

Data collection, analysis, interpretation and management

Enterprise Systems
ERP (e.g. SAP), General ledger (e.g. Oracle financial), etc.

Sample Driven Process Management
LIMS
(Laboratory Information Management Systems)

Data/Content Management
SDMS
(Scientific Data Management Systems)

Experiment Driven Process Management
ELN
(Electronic Lab Notebooks)

Analytical Instrument Control & Data Generation
Workstations
to
Distributed Data Systems

Instrument Control and Data Acquisition
Drivers


Instruments


Critical User Needs

"Your needs" drive our data systems solutions

- "Give me tools to help me be more productive"
- "Maintain functionality & give me a compelling reason to migrate"
- "Make it an easy, evolutionary transition with minimal impact, don't break my workflows"
- "Lower my total cost of ownership"
- "Protect my current investments – add to what I have but don't force me to change it"
- 'Help me rationalize my multi-technique, multivendor laboratory"
- "I want the freedom to choose products from different vendors that best fit my needs"
- "Meet my regulatory requirements"

Agenda

- Software and Informatics Vision
- Analytical Laboratory Software Landscape and User Needs
- **OpenLAB Strategy**
- OpenLAB Products
- Summary

OpenLAB Strategy

Architectural Values

OpenLAB
CAPTURE · ANALYZE · SHARE

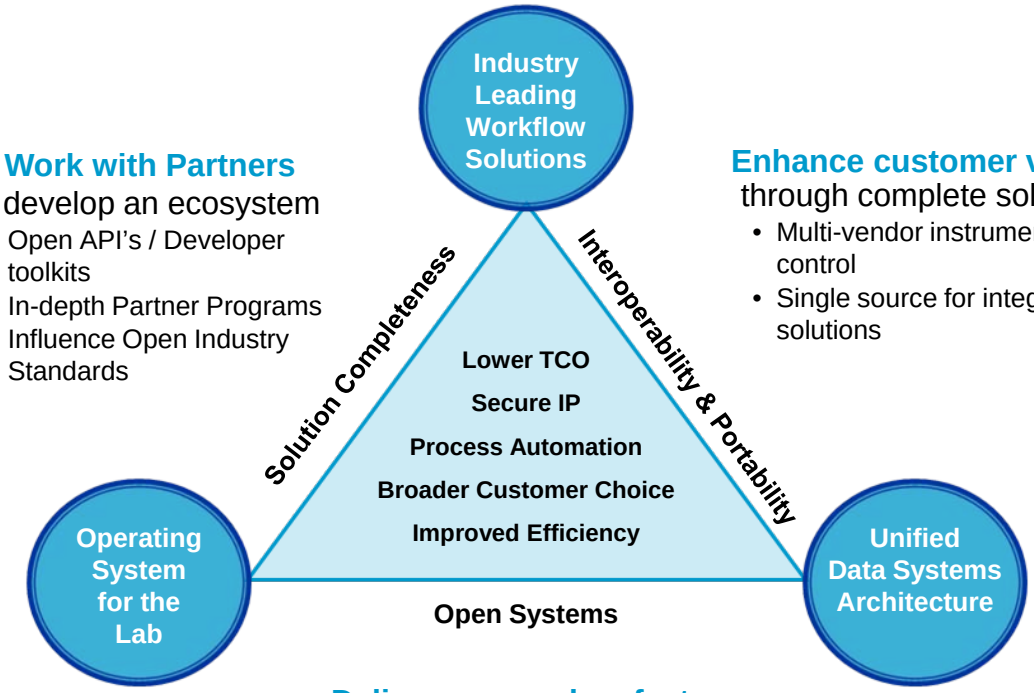
OpenLAB is a ***new class of data systems*** that provides a unique combination of interoperability, portability and open software standards

- ✓ Pervasive (common) User Interface
- ✓ Applications operate at all levels of the enterprise (seamlessly scalable from workstation to networked to enterprise/distributed)
- ✓ Data is portable across the enterprise (data stores)
- ✓ Data storage agnostic (Oracle / SQL Server / File System)
- ✓ Reporting is unlocked (XML based)
- ✓ Application driven workflows exploit shared services (reporting / secure storage / identity management)
- ✓ Open standards enable interoperability with third party hardware and software products
- ✓ Provide consistency, control, portability, migration & connectivity
- ✓ Designed for supportability with provision of remote diagnostics and monitoring
- ✓ Data migration tools for process automation & legacy support

OpenLAB Strategy

Responding to customer needs

OpenLAB
CAPTURE • ANALYZE • SHARE



Work with Partners
develop an ecosystem
- Open API's / Developer toolkits
- In-depth Partner Programs
- Influence Open Industry Standards

Enhance customer value
through complete solutions
- Multi-vendor instrument control
- Single source for integrated solutions

Deliver more value, faster
through simplified portfolio
- Investment protection
- Greater investment focus
- Built on Open Standards

The Fundamentals of Agilent's Informatics Strategy

- Integration of disparate systems
- Multi-vendor & multi-technique control
- Store, share & collaborate with all data & documents
- Open Systems architecture
- Based on clear architectural values
- Web-based scalable architecture
- Collaboration platform
- Multi-vendor compliance
- World-class Professional Services

OpenLAB Strategy

Paradox: The chromatography market is mature – “Give us something new but don’t disrupt our workflows”

- Enhance ChemStation and EZChrom workstations with improved, shared, components
  - Ongoing non-disruptive evolution within current workflows
- Deliver a consolidated CDS combining ChemStation/EZChrom with OpenLAB scalability
  - Easily move from workstation to networked to distributed CDS
- Enable data storage scalability from simple file system to enterprise SDMS
  - Data storage to meet needs of different laboratories
- Provide connectivity to other types of analytical workstations
  - Integrating all techniques in the laboratory
- Provide connectivity to non-Agilent CDS, Workstations, LIMS and ELN
  - Adapt to existing environment
- Deliver breakthroughs in design for supportability across the portfolio
  - Lower cost of ownership

Solution: OpenLAB provides users with evolutionary paths to transform their systems while maintaining their legacy workflows

Agenda

- Software and Informatics Vision
- Analytical Laboratory Software Landscape and User Needs
- OpenLAB Strategy
- **OpenLAB Products**
- Summary

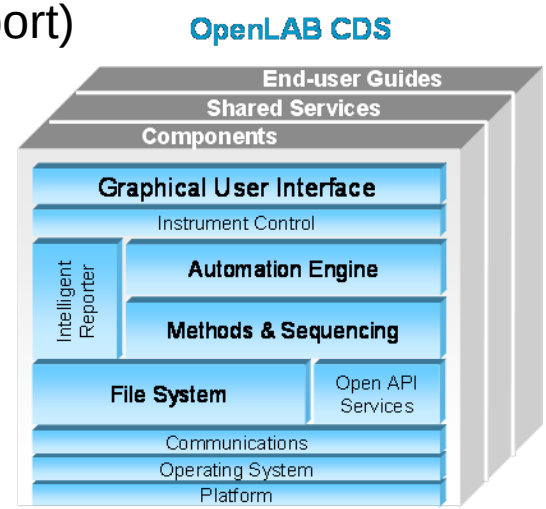
OpenLAB Products - What's New

Underlying Shared Services - "The Plumbing"

OpenLAB
CAPTURE · ANALYZE · SHARE

A set of common services to be shared by all Agilent data systems provides functional support to each component (e.g. instrument control)

- Simplifies our products (eliminates code redundancy)
- Provides an infrastructure to integrate disparate platforms into a consistent environment
- Facilitates open interfaces to non-Agilent systems (e.g., API/SDK support)
- Simplifies data storage and enhanced reporting (XML support)
- Accelerates system fault isolation
  - ✓ Improved design for supportability
- Enhances our user-interface
  - ✓ Instrument configuration services (global & site specific)
  - ✓ Centralized monitoring & status



- Coming in Q4, 2010

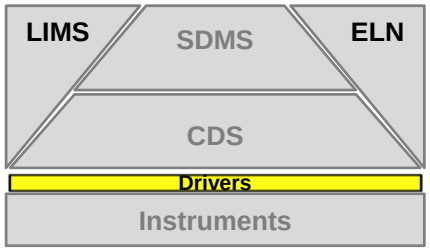
OpenLAB Products

Instrument Drivers

OpenLAB
CAPTURE • ANALYZE • SHARE

- Move from legacy embedded drivers to “stand-alone” instrument drivers based on a common standard (RC.Net)
  - Common instrument control across different Agilent workstation (EZChrom, ChemStation, MassHunter)
  - Enables software independent release of new instruments

- Enable multivendor interoperability
  - Work with partners (e.g. Persistent Systems) to develop RC.Net drivers for Agilent software
  - Provide an Instrument Control Framework (ICF) for LC RC.Net drivers to third parties to implement control of Agilent instruments
    - Enables timely and full control of Agilent instruments in non-Agilent software environments



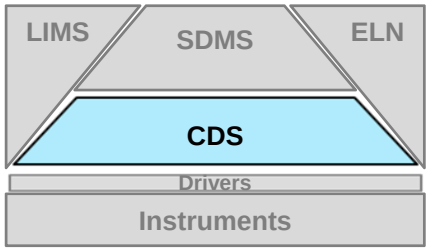
OpenLAB Products

Chromatography Workstations and Data Systems

OpenLAB
CAPTURE • ANALYZE • SHARE

EZChrom/ICM and ChemStation are the two clear market leaders in chromatographic instrument control – Agilent controls more GCs/LCs than any other vendor

- Enhance and converge platforms
  - Introduce shared components (e.g. Easy Sequence, RC.Net Drivers) into EZChrom and ChemStation to enhance and converge functionality
  - Merge EZChrom and OpenLAB ICM code streams to harmonize functionality and workflows
  - Enable scalability of ChemStation from workstation to distributed data system
  - Preserve: User legacy workflow preferences for minimal disruption to current users
- Consolidate under one infrastructure – OpenLAB CDS
  - All platforms use “shared services”
  - Common “Control Panel” with consistent
    - Instrument Management (configuration/status/launch)
    - User Management (authentication), Permissions/roles (authorization)
    - Project Management
    - Licensing Management
    - Data storage abstraction (file system, data base, ECM)
    - Connectivity to other applications (e.g. LIMS)

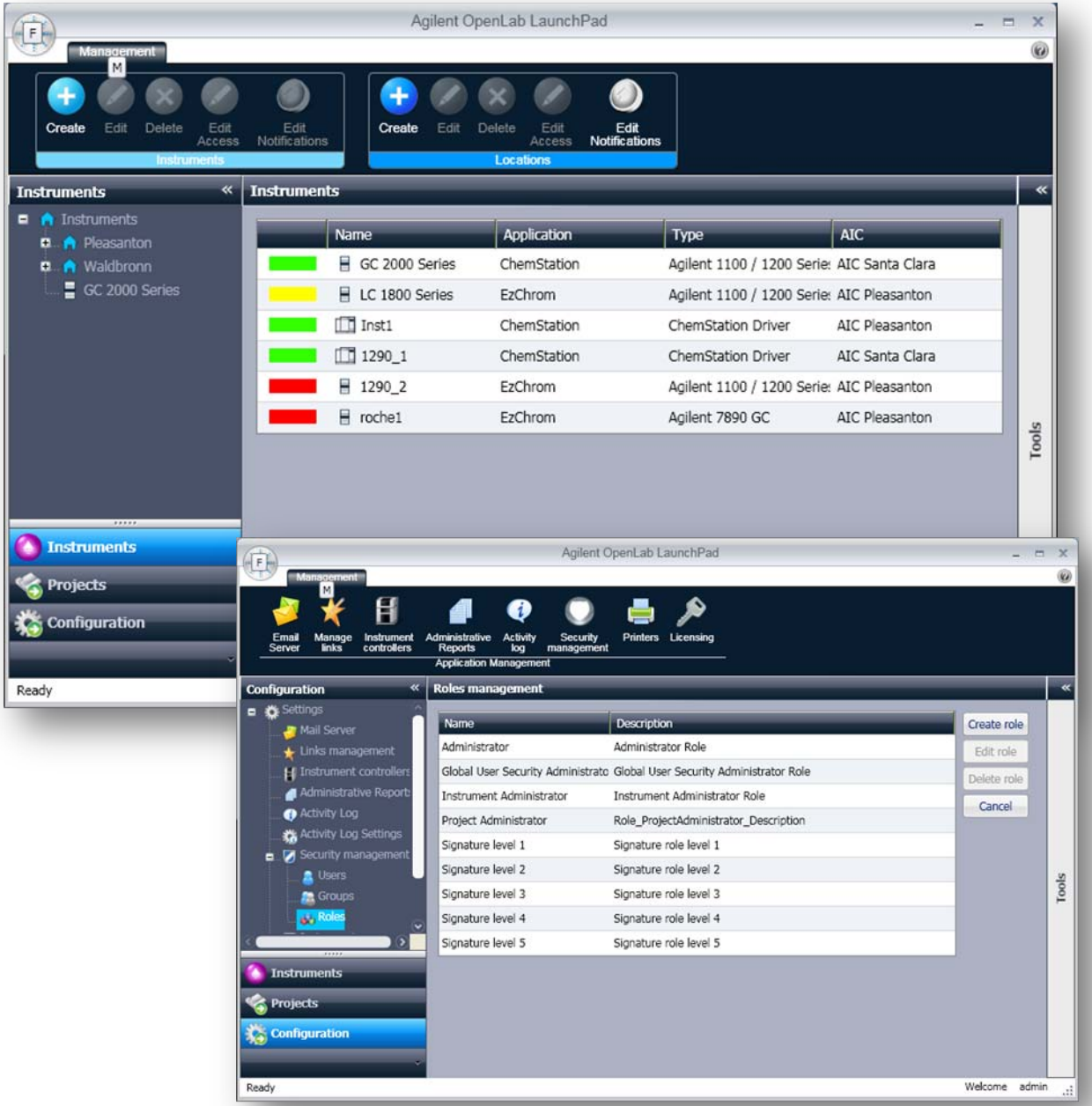


OpenLAB CDS

Control Panel

Central point for:

- Lab-at-a-glance view
- Administration of users, storage and instruments
- Launch for ChemStation and EZChrom instruments
- New look and feel:
- Intuitive
- Easy-to-use
- Distinct/differentiating

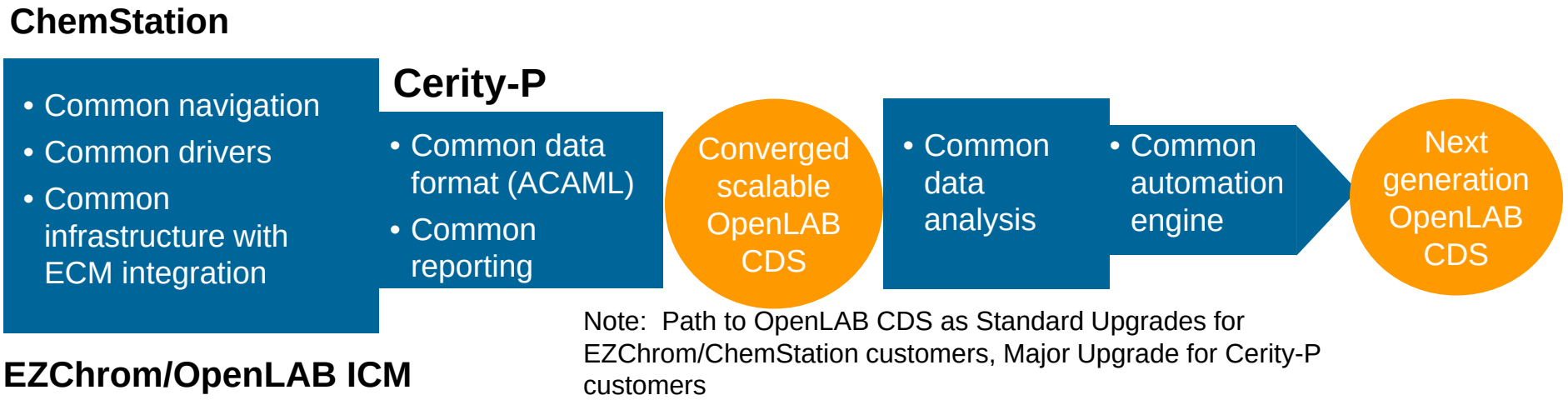


OpenLAB Products

Consolidation to single CDS

OpenLAB
CAPTURE · ANALYZE · SHARE

- At least identical features with enhanced functionality (“legacy Views”)
- Investment protection (clear future path for all platforms)
- Easy transition/non-disruptive change (simple upgrade with easy migration)
- Productivity enhancements (new: Reporting, Data Analysis, Administration)
- Compliance (ECM backend) or low-maintenance option (file based)



Note: Path to OpenLAB CDS as Standard Upgrades for EZChrom/ChemStation customers, Major Upgrade for Cerity-P customers

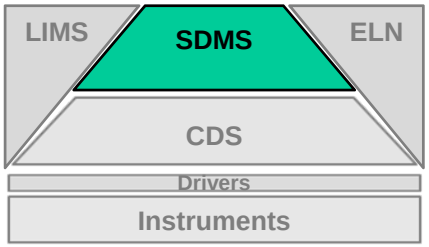
OpenLAB Products

Scientific Data Management

OpenLAB
CAPTURE · ANALYZE · SHARE

OpenLAB Enterprise Content Manager (ECM) is a market leader in scientific data and content storage, management and reporting with import filters for Agilent and many non-Agilent data systems. It scales from "workgroup" to enterprise.

- Enhance the scientific data management functionality
  - Extend and improve filters for Agilent and third party workstations and data systems
  - Enhanced searching (Federated search)
  - Improve OpenLAB Intelligent Reporter to support multiple .XML data types for multivendor, multi-technique reporting
- Enhance ECM for Workgroups as data archive "back-end" for instrument data systems
  - Simplified installation and maintenance
- Internationalization
  - Support for Chinese, Japanese, Korean, etc. characters
- Support integration with third-party applications
  - e.g. Non-Agilent ELN and CDS



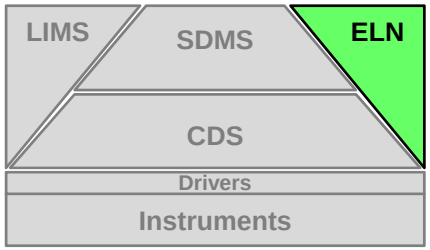
OpenLAB Products

Electronic Lab Notebook

OpenLAB
CAPTURE · ANALYZE · SHARE

OpenLAB ELN is an open architecture, highly flexible electronic lab notebook that simplifies and accelerates the R&D process and facilitates cross-team collaboration

- Integrate into OpenLAB framework
  - Consistency with OpenLAB architectural values
  - Connectivity with OpenLAB ECM and CDS
- Enhance/Extend Multidisciplinary Capability
  - Enhance existing workflows
    - Synthetic Chemistry, Biologics analysis, assay development
  - Extend to workflows analytical laboratory workflows
    - Analytical services -> Analytical development
    - Connectivity with Agilent instrument workstations
    - Integration with small instruments (balances, pH meters…)
- Enhance IP Protection
  - SAFE (user authentication) and Surety AbsoluteProof (data integrity)



OpenLAB Products

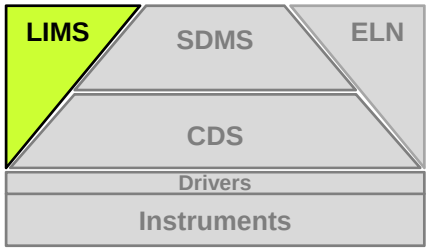
Laboratory Information Management Systems

OpenLAB
CAPTURE · ANALYZE · SHARE

Agilent is not and does not intend to be a player in the LIMS market but we recognize the importance to customers of connectivity to their LIMS

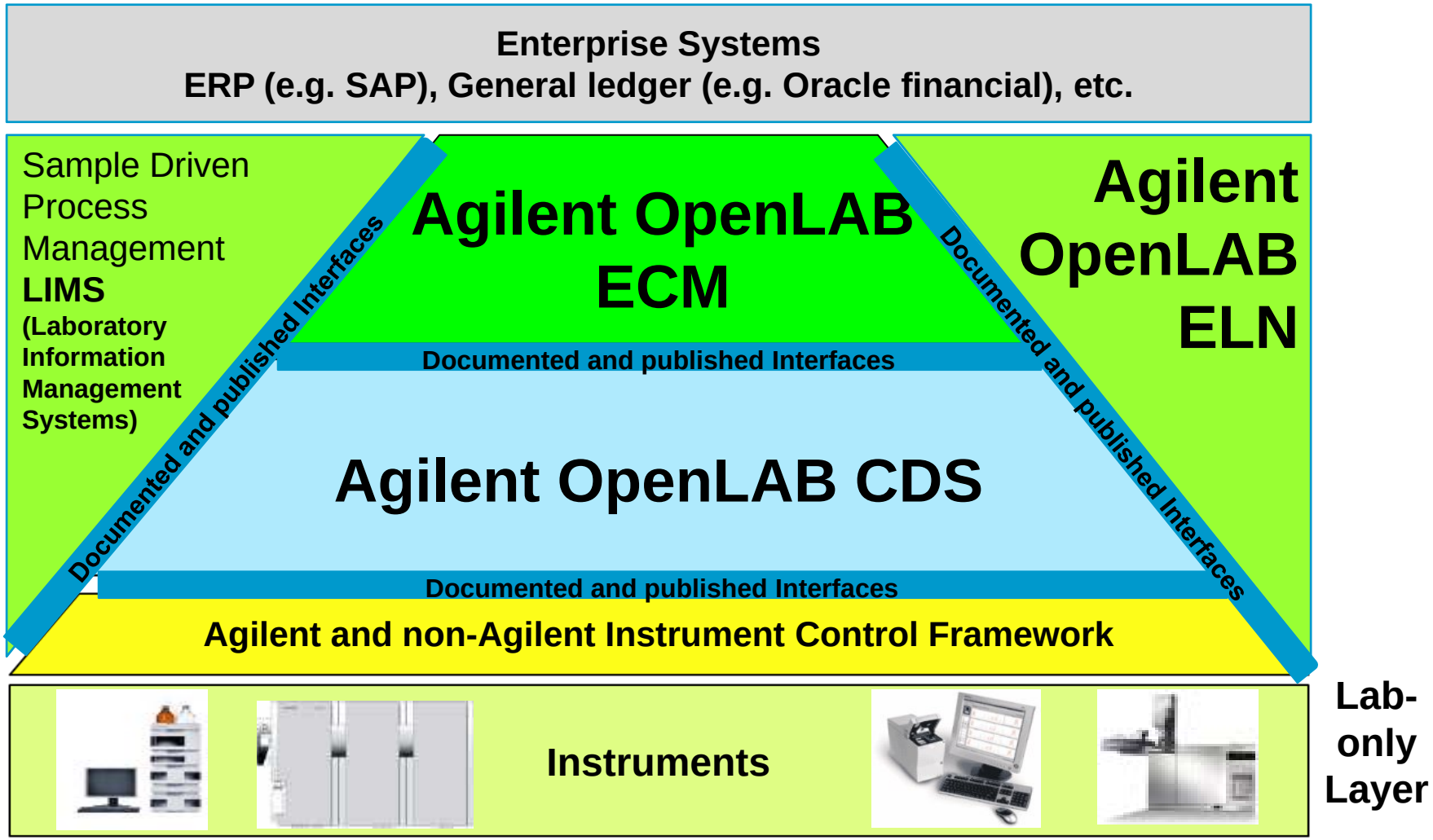
- LIMS connectivity is possible with most Agilent software products

- In a new initiative Agilent intends to simplify and standardize connectivity between LIMS and Agilent workstations, data systems and OpenLAB ECM
  - Will work with LIMS vendors to develop a new open standard for LIMS connectivity



OpenLAB Products

SDKs and APIs & Partner Program



OpenLAB Products

Professional Services

OpenLAB
CAPTURE • ANALYZE • SHARE

Improving delivered value by providing Project Management Institute – PMP Certified – Project Managers

Extending the PSO role

H/W, S/W & Services Integration

Product Centric Services

- Installation
- Product Training
- Validation (IQ/OQ)
- Simplified licensing
- Software Maintenance (SMA)

Expanding Our Services

- Service supports the customer vs. product
- Higher service levels to make the customer more efficient (e.g., onsite support, remote diagnostics, online support services)
- Operational assistance
- Integration services

Delivering Complete Solutions

- Workflow automation / process automation
- Collaboration platforms
- Customer leverage of our best-in-class services (e.g. Architecture)
- Systems integration (e.g., CDS & LIMS, Content Management, Electronic LAB Notebook)
- Paperless Laboratories

Our immediate focus has been portfolio integration and design for supportability – delivering to customer expectation

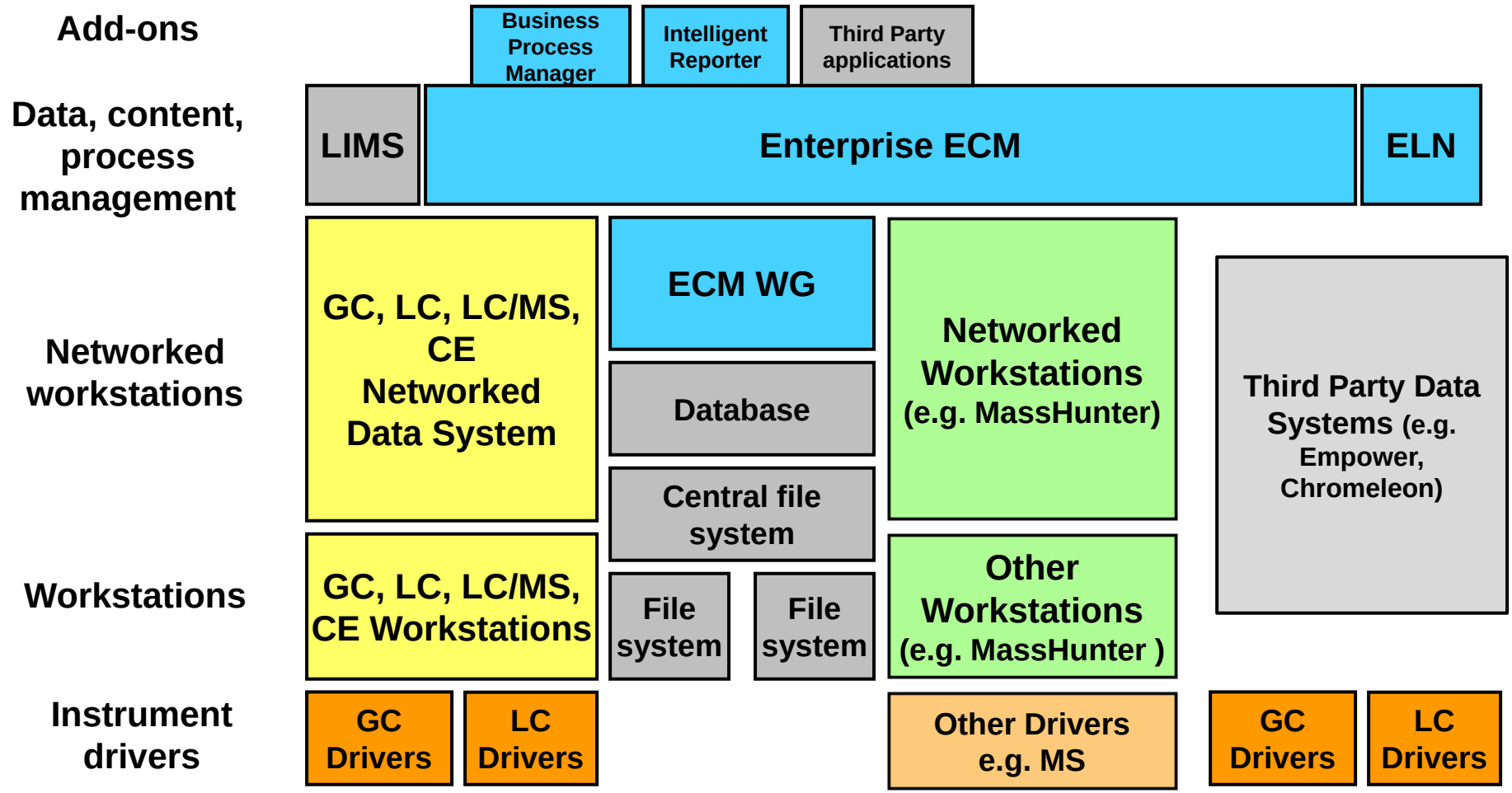
Working directly with customers to maximize their return on their investments in software and informatics

Agenda

- Software and Informatics Vision
- Analytical Laboratory Software Landscape and User Needs
- OpenLAB Strategy
- OpenLAB Products
- **Summary**

Summary

OpenLAB – The Vision – Integrating the Laboratory



Summary

Agilent's Informatics Transformation Strategy

OpenLAB
CAPTURE · ANALYZE · SHARE

- Open Systems
  - Represents broader customer choice
  - Enables our instruments to fit into customer environments and stand-out on a performance basis
  - Appeals to ecosystem partners allowing completeness of solution
- A Consolidated, Scalable CDS
  - Powerful combination of ChemStation, EZChrom/ICM & Shared Services
  - "Integrate, Refresh, Simplify" strategy that includes shared component development
  - Growing the application portfolio
- A Compelling Vision: Unified Data Systems Architecture
  - Architectural values (e.g., scalability, pervasive user interface, database agnostic, etc.) guiding system development
  - Integrating and refreshing the entire OpenLAB portfolio (CDS, SDMS, ELN)
  - Improving design for supportability
- Adoption of new technologies
  - Shared Services to Web Services to Collaboration Services
  - Use of mobile computing devices
  - Cloud computing opportunities

Thank You