Banner’s Transformative Evolution

John Kopcke | Senior Vice President & CTO | Sept. 15, 2015
<table>
<thead>
<tr>
<th></th>
<th>Agenda</th>
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<td>Ellucian XE: Setting the Stage</td>
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<td>Banner Today</td>
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<td>Acceleration of Banner</td>
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<td>5</td>
<td>Path to Adoption</td>
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</tbody>
</table>

Banner Update
XE Strategy and Design Principles

XE Design Principles

- Usability
- Cloud Readiness/Scalability
- Configuration over Customization
- Extensibility
- Features/Functions

Common Architecture

- APIs/Web Services/eg eTranscripts
  - Student/Degree Works
  - Financial Aid
  - Advancement
  - Finance
  - Human Capital Management
  - LMS and other third-party systems
Applications Leveraging XE Strategy

**Available Application**

**Banner**
- Catalog
- Schedule
- Grade Entry
- Attendance Tracking
- Event Management
- Advising and Student profile
- Registration
- Employee Profile

**Ellucian Elevate**
- eTranscript

**Ellucian Mobile**
- Ellucian Portal

**Ellucian Perform**

**Applications in Development**

**Banner**
- Academic history, electronic gradebook
- Communication Management
- Position Description
- Purchase Requisition

**Banner HR, Position Control, General Forms Transformation**

**Banner Finance Forms Transformation**

**Ellucian Pilot**
Banner Today
Former Employee Self-Service Menus
Content First

Employee Dashboard

Gaddis, Bella

- My Profile
- My Team

Sick days: 1.50
Vacation days: 6.16
Ed Leave days: 5.00
Birthday days: 1.00
Personal days: 2.94

EMPLOYEE SUMMARY

- Status: Active
- Current Hire Date: 2008-01-14
- Original Hire Date: 2008-01-14
- Adjusted Service: 2008-01-14
- Seniority: 2008-01-14
- First Work Day: 2008-01-14

- Hiring Location: BANNER University Main Campus
- Hiring College: College of Engineering
- Hiring Campus: Edmond
- District/Division: Engineering Division

JOB SUMMARY

- Director, Student Services MYE002-00, Operations Research
- Faculty Adjunct (FLAC) FAC002-00, Operations Research

PAY INFORMATION

- Last Payment Paid on: 2014-04-30
- Download Latest Pay Stub

EARNINGS

- Year to Date Earnings: $24,538.49
- Earnings By Date Range
- Earnings By Position

BENEFITS

- Open Enrollment
- Current Summary
- Current Enrollment
- Beneficiaries and Dependents

TAX

- Federal Tax
  - Filing Status: Single
  - Number of Allowances: 1
- Pennsylvania Taxes
- W-4 Employee's Withholding Allowance Certificate
- Electronic W-2 Consent
- W-2 Wage and Tax Statement
Banner Advising and Student Profile

Single view of the most critical information necessary for students and advisors/mentors/tutors to make better academic decisions

- Fast and efficient access to pertinent student records
- Reduces training required for advising processes within the institution
Banner Academic History & Electronic Gradebook

Improved and modern user experience from grading to graduation processing

Support for multiple academic models

Streamline processes for both administrative personnel and students
Attendance Tracking

Modern
Mobile First
Cloud Enabled
“This was an implementation that was just a dream—we have yet to have a single negative comment on our registration listserv or any calls to our office with issues...the students thought it was very intuitive and easy to use and used both the registration planning and registration function.”

University of Oklahoma
New baseline capabilities to enable tactical and transactional communications

New tools to create, publish, and track constituent communications
Development Partners

- Colorado Community College System
- Cuyahoga Community College
- Kent State University
- Drexel University
- Texas A&M University
- AN CHÉIM
- Liberty University
- Georgia Tech
- University of Victoria

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Acceleration of Banner
Modernizing Banner

Administrative Imperatives

• Technology—Eliminate Oracle Forms

• Usability—Consumer web in high productivity mode
Yesterday
Today… Banner HR in Beta
Banner Human Resources Transformation Beta Testing
Customer Development Partners

San Jacinto College
Your Goals. Your College.

Lamar University

University of Alaska
Many Traditions. One Alaska

Mohawk College

Virginia Tech
Invent the Future®

Sault College
Polytechnic

Ellucian

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Modernizing Banner

Integration Imperatives

- API-based integrations
- Enterprise strength connections
This information provides a general strategic view of Ellucian’s anticipated future offerings. The information in this document is confidential and proprietary to Ellucian and neither the document nor its contents can be disclosed to anyone without a written obligation of confidentiality in place with Ellucian.

The information in this document is not a commitment, promise or other obligation to deliver any material, code or functionality. The document and its contents are subject to change, without prior notice, at the sole discretion of Ellucian.
Ellucian Roadmap Legend

Investment Category:
Helps to group targets for any release into primary investment categories:

Target deliverable: features, capabilities, architectural enhancements, etc. Color indicates confidence level

Confidence Level Legend:
See definitions and disclaimers on next slide

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Confidence Level Definitions

We use the term “confidence level” to describe the likelihood that the items on the roadmap will be delivered at the dates shown on the timeline. There are many factors that impact our ability to predict delivery including but not limited to:

- **Customer priorities** – Our releases are driven by customer feedback and prioritization. Sometimes the priorities change due to any number of external factors. At any time, we may change the priorities in any given future release to better reflect our customers’ interests.

- **Quality Targets** – Each of our product releases undergoes a stringent quality assurance process prior to release. Should a particular capability not meet our quality targets, we may choose to defer that specific capability to a future release or not complete the development of that capability.

- **Design Constraints** – In response to customer feedback, we attempt to provide visibility beyond the next product release. In doing so, we share capabilities that reflect customer requests but have not gone through the technical design phase. In some cases, the technical design phase will reveal a larger level of effort and dependencies that make the original timeframe infeasible. Further, the design phase could reveal that the capability is not technically feasible at all or not cost effective resulting in abandonment of effort.

- **Budget Cycles** – For roadmaps that might include visibility beyond the current Ellucian fiscal year budget, all items are subject to financial progress against goals and the availability of funds for that particular project in future budget cycles.

- **Engineering Forecasting Accuracy** – All roadmap items are subject to some level of forecasting accuracy imprecision resulting in certain functionality pushing out to later releases on a roadmap timeline.

The further out the release date, the higher the likelihood that one or more of these factors will impact the accuracy of our roadmaps. That is why we clearly indicate less than 100% confidence for our next release even though it may scheduled to be released in the short-term, and why we use decreasing confidence levels for items that are further out on the roadmap.
<table>
<thead>
<tr>
<th>FEATURES</th>
<th>2014</th>
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<th>2016</th>
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<tbody>
<tr>
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<td>Registration CR-2</td>
<td>Registration 9.2 - GA</td>
<td>Academic History 9.1 GA</td>
<td>Registration 9.4</td>
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<tr>
<td>Advising Student Profile</td>
<td>Student Profile 9.1</td>
<td>Registration 9.3</td>
<td>Academic History 9.2</td>
<td>Student Forms Transformation</td>
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<td>Banner Communication Management CR-1</td>
<td>Banner Communication Management - GA</td>
<td>Person/general Information</td>
<td>Online Enrollment Processing</td>
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<td>AR SS View Fee Statement</td>
<td>A/R Forms Transformation</td>
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<td>Common Navigation</td>
<td>Ellucian Solution Manager 1.4</td>
<td>Administrative Extensibility</td>
<td>Self Service Extensibility</td>
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</tbody>
</table>

API

- Student Profile
- Advising
- Course Catalog
- Schedule of Classes
- Faculty
- Registration API
- API reference Table
- Remainder Student Profile
- Grade
- Class Schedule
- Person
- API Release
- API Release
- API Release
- API Release
- API Release
- API Release

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Cloud Principles

FIVE POINT CLOUD STRATEGY

1. ACCELERATION
2. USER EXPERIENCE
3. YOU MAINTAIN CONTROL
4. LOW COST OF OWNERSHIP
5. COMMITTED TO CHOICE
Levels of Cloud Adoption Vary: Choice is Key

Mixed deployment model includes the ERP

Blended deployment model for increased business process support

All systems reside on campus
Future-Ready Technology
Changing Banner is Simplified through Extensibility Tools

- **Branding, Vocabulary**
  - Common Extensibility Tools
    - Transformed Page Modules
      - HTML5
      - Java
      - Ellucian Libraries
      - Core Libraries and Framework
    - Banner Lightweight Web Applications and APIs
      - JavaScript (Backbone/JQuery, AngularJS)
      - Common Ellucian Plugins
      - Grails Web Framework / Groovy
  - Banner Database
    - DBEU

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# The Extensibility Continuum

<table>
<thead>
<tr>
<th>Configure Applications</th>
<th>“non-developer” tools (Analysts, UXD)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Source Required?</td>
</tr>
<tr>
<td>Hide, reorder, modify, add page components (CPC Tool)</td>
<td>JSON</td>
</tr>
<tr>
<td>Change colors, fonts, graphics</td>
<td>–</td>
</tr>
<tr>
<td>Change field labels, error messages</td>
<td>2015*</td>
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<table>
<thead>
<tr>
<th>Extend Applications</th>
<th>Developer-centric tools, documentation</th>
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<tbody>
<tr>
<td>Extend domains (Domain Extension Tool, documentation)</td>
<td>✓</td>
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<tr>
<td>Extend Business Logic (documentation)</td>
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</tr>
<tr>
<td>Extend transformed administrative pages (Foundations, Frames tools)</td>
<td>.jar</td>
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</table>

<table>
<thead>
<tr>
<th>Modify Applications</th>
<th>Developer-centric documentation</th>
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</thead>
<tbody>
<tr>
<td>Modifications that cannot be made with configure or extend tools (Source code in Git)</td>
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</table>

<table>
<thead>
<tr>
<th>Develop Applications</th>
<th>Developer-centric tools, documentation</th>
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<tbody>
<tr>
<td>Developers Guide—getting started, standards</td>
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<tr>
<td>Ellucian-developed Grails plugins</td>
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<tr>
<td>Application Development Tools (Foundations, Frames, Page Builder)</td>
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</table>
Ellucian Solution Manager is a no-cost software application to help customers manage their environments and the software received from Ellucian. It can help customers provision new environments and automate the Banner upgrade process.
<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Application</th>
<th>Current Installed Release</th>
<th>Latest Available Release</th>
<th>Selected Target Release</th>
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<td>BannerERP</td>
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ESM 1.4 Key Features (GA: Summer 2015)

• **Banner Pages Upgrades**
  • Includes Baseline, TCC, Localizations, Customizations, HTTPs config support

• **Banner 8x/9x Upgrades**
  • Solaris, HP-UX, AIX, Windows
  • Tomcat
  • RAC environments

• **Simplify ESM install and environment setup**
  • Detailed Documentation (checklists, field help, pre-requisites)
  • Pre-requisite checking scripts prior to ESM install

• **EIS provisioning templates (environment and add IDM application)**

• MEP environments – Banner 8x: Upgrades and Deployments support de-scoped (only affects a few customers)
ESM 1.5 Planning - Key Features (Autumn 2015)

- Further Simplify ESM install and environment setup
  - Pre-req validation scripts to simplify ESM install and env config (continued)
  - Usability enhancements (continued)
  - NFS shared drive dependency removal
  - SSH/SFTP dependency removal (inbound to jobsub from app servers - security)
- Banner Patches support
- Role based security for ESM functionality
Adoption Path
Welcome to the XE Guide

Mobile. Simple. Flexible. That's the vision behind the Ellucian Extensible Ecosystem (or simply, “XE”). Institutions should be able to extend, configure, and add solutions as campus needs evolve—and do so without sacrificing existing investments.

This site is your interactive guide to tracking your institution’s progress. Check the “Step Completed” box at the bottom of each page as you progress and it’ll be here for you when you return.

This site is your one-stop-shop for deploying XE applications. Ellucian’s XE strategy makes it easier and more efficient for institutions to implement, manage, and extend our solutions. This innovative strategy supports improved functionality, better integration, more agile development, expanded points of access for users, and innovative delivery methods. But don’t take our word for it, here’s what other institutions have to say:

Bluefield State College adopts Banner XE applications

Why XE?

With XE, you can:

Evolve your digital campus

With APIs and web services wrapped around our solutions, you have the tools you need to shape your digital campus.
Plan Your XE Deployment

Implementing XE is a simple and straightforward process and there’s no prescribed order for implementing the applications. If you are not sure which application(s) to start with, take a look at the available XE applications. Before you begin, you should check to make sure that your technological infrastructure is optimized for XE. Because each institution is different, you should always validate your hardware sizing through performance testing using a workload representative of your unique situation. The modular architecture of Banner XE enables institutions to determine which applications will be deployed—and at what time. Institutions can choose to deploy Banner XE applications based on institution-specific service delivery requirements. These applications are ready whether you are on the cloud or have an on-premises deployment, and can scale up or down as your needs change.

Because each Institution is different, you should always validate your hardware sizing through performance testing using a workload representative of your unique situation.

Your IT infrastructure must meet a few basic requirements. Below are the prerequisites you should have in place before installing XE applications.

**Hardware**

The Banner XE architecture reduces the resource requirements from the Oracle database tier, which enables additional room for growth and allows Oracle RAC technology to support higher user loads. This modular deployment allows customers more flexibility when upgrading smaller modules independent of the entire Banner product. This also reduces the dependencies on application upgrades.

Banner XE technology scales horizontally in the application server tier using lower cost commodity hardware, allowing higher performance for increased user loads. The number of applications per application server will vary depending on the applications’ expected concurrent usage, which determines the memory and CPU usage.

Before implementing XE, you must first determine your hardware requirements based on application usage. Our Banner XE Sizing and Configuration Guide will help you determine the appropriate sizing for your environment.

**Database Requirements**

The XE application supports Oracle Database 11.2.0.2, with:
Ellucian’s online guide is your key resource to adopting XE. Are you confident on how to adopt XE and looking for a place to track your progress? Do you want to see how XE could make an impact at your institution? Ellucian’s new interactive website is designed to provide the information you need to deploy XE applications at your institution including:

- Learning what applications are available today
- Finding tips on implementing identity services
- Getting help if you need it
- Sharing your stories with others

Adopting XE is a straightforward process utilizing Ellucian’s new website designed to answer your questions. The site will help guide you through the steps to:

1. Plan your XE deployment
2. Get current with Banner
3. Understand the role of identity services
4. Roll out XE to your community

Visit www.ellucian.com/xeguide to begin.

Visit www.ellucian.com/xeguide to get started.
Contact us for more information.

ellucian

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SVP & CTO

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