## CU's PSoft SDM – One Year Later

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#### Your Presenters

- Stephanie Herrick
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  - Cornell University

- Ashley Silverburg
  - Chief Data Architect
  - Phytorion, Inc.

#### Overview

Cornell University has now implemented a full set of Data Marts to support Student Administration (CC, AD, FA, SR, SF) according to our EDW strategy. One year after implementation, we will revisit with you our successes, our challenges, our responses and our new initiatives.

## Agenda

- Project Deliverables
- Challenges
- Responses
- Successes
- Demonstration
- Q&A

# Cornell University

- Main Campus in Ithaca, NY
- Founded 1865
- Both a State & Private Institution
- Undergrad enrollment 13,515
- Graduate enrollment 5,932
- Faculty members 2,633
- Staff employees 11,236



Clock Tower & Sage Chapel taken from Cornell's Statler Hotel

## Phytorion, Inc.

- Full enterprise data warehouses
- Area-specific data marts
- Operational & Strategic content
- Integration of any source systems
- Fully customized approach, or
- Packaged data marts



#### Cornell ERP Environment

- PSoft
  - Campus Community
  - HR, Payroll, Benefits
  - Contributor Relations
  - Student Admin (AD, FA, SR, SF)
- Legacy/Non-PSoft
  - Finance (future Kuali), Research Admin, etc.

### Cornell Data Delivery Environment

- Cornell Enterprise Data Warehouse (EDW)
- Incremental Data Mart development
  - Use Kimball Methodology
  - Leverage existing infrastructure
  - Partner internal and external resources
  - Deliver marts to support new operational applications
  - Use a "business questions to be answered" approach

### Cornell Data Delivery Environment

- Servers: Solaris & Windows (plans to migrate to Linux – June '09)
- RDBMS: Oracle 10g R2 using RAC (plans to migrate to 11g – June '09)
- ETL Tools:
  - Psoft marts use Cognos DataManager v8.4
  - DMTools
  - Legacy marts use PL/SQL, Korn Shell Scripts, etc.

## Cornell Data Delivery Environment

- Reporting:
  - Hyperion/Brio 8.3.2
  - CU Dashboard
  - OBIEE (Discovery)

## Who is this person next to me?

- How did we get here?
- RDS
- STARS Cross-functional
- EDW
- Recruitment data training
- Custom vs Product

#### **Project Deliverables**

PERSON\_DATED\_DATA\_DM PERSON\_DATED\_DATA\_SID

LAST\_SCHOOL\_ATTENDED\_DM LAST\_SCHOOL\_ATTENDED\_SID

APPLICATION\_ATTRIBUTES\_DM APPLICATION\_ATTRIBUTES\_SID

> RECRUITER\_DM RECRUITER\_SID

PROGRAM\_PLAN\_DM
PROGAM PLAN SID

(Primary and alternate programs)

#### APPLICATION\_FC

[Surrogate IDs to link to dimension tables] APPL FEE DATE ADM\_CREATION\_DATE ADM\_UPDATED\_DATE ADM APPL DATE ...Other application dates STDNT CAR NBR ADM APPL NBR LAST\_SCHOOL\_GPA LAST SCHOOL CLASS RANK LAST\_SCHOOL\_CLASS\_SIZE ACADEMIC INDEX APPLICATION\_COUNT\_FIELD COMPLETED\_APP\_COUNT\_FIELD WITHDRAWN COUNT FIELD ADMITTED COUNT FIELD ADMITTED PRIM COUNT FIELD ADMITTED ALT COUNT FIELD ...Other Cornell-defined count fields RUN DATE CURRENT FLAG SNAPSHOT FLAG

Applicant attributes and measures: one row per application

ADMIT\_TERM\_DM ADMIT\_TERM\_SID

REGION\_DM REGION\_SID

SPECIAL\_APP\_INDICATORS\_DM SPECIAL\_APP\_INDICATORS\_SID

ACTION\_STATUS\_REASON\_DM ACTION\_STATUS\_REASON\_SID

Group dimension to link to multiple recruitment categories

RECRUITMENT\_CAT\_DM RECRUITMENT\_CAT\_SID

APPL\_STDNT\_RESPONSES\_DM APPL\_STDNT\_RESPONSES\_SID

## Project Deliverables

PERSON\_DATED\_DATA\_DM
PERSON\_DATED\_DATA\_SID

INSTITUTION\_DM INSTITUTION\_SID

ACADEMIC\_TERM\_DM
ACADEMIC\_TERM\_SID

TERM\_ACAD\_LEVEL\_DM
TERM\_ACAD\_LEVEL\_SID

WITHDRAW\_DM WITHDRAW\_SID

#### STUDENT TERM FC

[Surrogate IDs to link to dimension tables]

WITHDRAW\_DATE
LAST\_DATE\_ATTENDED
STUDENT\_CAREER\_NBR
[Various unit measures]
TOT\_GRD\_POINTS\_FA
CLASS\_RANK\_NBR
CLASS\_RANK\_TOT
CUR\_RESIDENT\_TERMS
TRF\_RESIDENT\_TERMS
CUM\_RESIDENT\_TERMS
CUR\_GPA
CUM\_GPA

TERM\_ACAD\_LOAD\_DM

TERM\_ACAD\_LOAD\_SID

CAR\_PROG\_PLAN\_DM
CAR\_PROG\_PLAN\_SID

RESIDENCY\_DM RESIDENCY\_SID

> STUDENT\_TERM\_ATTRIBUTES\_DM STUDENT\_TERM\_ATTRIBUTES\_SID

ACADEMIC\_YEAR\_DM

ACADEMIC\_YEAR\_SID

Term-based student attributes and measures: one row per student per career per term

## Project Deliverables (prior to HEUG '08)

- Campus Community
- Admissions Recruitment
- Admissions Applicant
- Student Records (Course & Class, only)
- Financial Aid

## Project Deliverables (after HEUG '08)

- Campus Community
  - Service Indicators (1 model)
- Student Records
  - Advisors (2 models, 2 reports)
  - Degree and Honors (2 models, 1 report)
  - Enrollment and Grades (6 models, 4 reports)
  - Milestones (1 model, 1 report)
  - Students (5 models)
  - Student Groups (4 models)
  - •Terms, Programs and Plans (10 models, 8 reports/extracts)
  - Transfers and Test Credits (4 models, 1 report)

## Project Deliverables (after HEUG '08)

- Student Financials (8 models, 5 reports)
  - Credit History
  - GL Interface
  - Items/Item Lines
  - Student Accounts
- Financial Aid (4 models)
  - PELL Disbursement & Origination
  - Student Loans/PNotes

# Cornell Challenges

- Managing user expectations
- Developing a support structure
- Load time & availability

# Cornell Challenge-User Expectations

- Managing User Expectations
  - Simultaneous implementation with the transactional system
  - Using star schemas to support operational reporting
  - Effect of Change

# Cornell Response - Support

- FDG (Functional Developer Group)
- Data Delivery Liaison

TDWI presentation – Sandbox Pilot

## Cornell Challenge – Load Time



# Cornell Response – Load Time

#### Retreat

- Parallelism in jobs
- PAE/Buffer sizes
- Partitioning
- Upgrade to DataManager 8.4
- Indexing on source data
- Future: Linux, 11g, additional partitioning, conditional jobsteps

# Cornell Response – Load Time



#### Successes

- Volume of deliverables
  - Implement production data mart of over 300 tables
  - Adapted to fit Cornell Project Plan
  - Parallel development made ongoing operational support possible

### Successes

- Custom vs "Off-the-shelf" approach
  - Adapted deliverables to CU DMTools environment
  - Responsive to JINT requirements, CU Mods
  - In line with overall EDW strategy

## Successes

#### Partnership:

- Continuous collaboration and issues/risk management
- Pre-implementation on-site visits
- Smooth handoff of ownership

# Demonstration

# Questions?

#### Thank You!

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