



# 3DEXPERIENCE®

## Taking Scientific Collaboration in the Cloud to the Next Level

Ton van Daelen, ScienceCloud Product Director

# Outline

- Industry challenges
- Collaboration and outsourcing in the cloud
- Customer case studies (pharma)
  - Small molecule and biologics partnerships
  - Joint research project
  - Screening partnerships



# Industry Challenges Driving Cloud Adoption



## Accelerate Innovation

- Leverage collaboration to address innovation mandate



## Lower TCO

- Budget reductions – do more with (a lot) less



## Increase Agility

- 'Get me up and running by tomorrow'

# Accelerate Innovation

- Critical business issues
  - Over 50% of research IT budgets spent externally
  - IT mandated to support external collaboration and open innovation
  - Every collaboration is different, often requiring a breadth of solutions
  - Starting up / closing down projects can take months
- Research informatics is under transformation

*'It can take up to 2 days per week for my scientists to clean up data they receive from collaborators'*

James Connelly, Sanofi

*'An estimated 60-70% of collaborative partnerships fail to deliver their intended outcome. Poor communication, unclear roles and responsibilities; data and reporting inconsistencies; and cultural differences are causes\*'*

# Lower TCO

- Critical business issues
  - Capital and operating budget reductions (up to 80%)
  - Pressure to consolidate software vendors
  - Low tolerance for software complexity
  - Point solutions no longer sustainable
- Cloud is only viable strategy to meet these demands

## Exclusive: Pfizer is once again cutting back R&D staff in reorganization

February 24, 2015 | By John Carroll

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Pfizer is once again trimming its R&D staff. Responding to a query from *FierceBiotech* regarding word of cutbacks at research facilities in Cambridge, MA, and Collegeville, PA, Pfizer spokesman Dean Mastrojohn sent back a confirmation, later declining to specify just how many jobs are being cut.



## Cloud Computing Leads Pharma IT Spending Survey

Source: Bio-IT World

The first in an annual series, Bio-IT World's 2013 Life Sciences IT Survey captures a host of trends in bio-IT for the coming year. The forecast: increasing budgets, almost certain data increases, and more clouds.

Bio-IT World's report dissects the responses of 121 senior executives in life sciences IT—CIOs and VPs—from a larger sample of 200 respondents. (60 percent of respondents herein are CIOs, the remainder VPs or senior VPs of IT.) Just under half the respondents work in biotech or pharma; the remainder work in government, hospital, academia, or vendor organizations.

# Increase Agility

- Critical business issues
  - Maintaining IT infrastructure (hardware, personnel) is expensive and not viewed as core competency
  - Need to get up and running quickly
  - Research goals evolve as do software needs
  - Collaboration features are lacking
- Many companies taking a cloud-first approach to IT

## John Reynders on Building a Cloud-Based Biotech

January 10, 2014 | John Reynders has quite the pharma pedigree, having held roles at AstraZeneca, Johnson and Johnson, and Eli Lilly spanning informatics to companion diagnostics to neuroscience biomarkers. Before his turn in pharma, he was part of the team building informatics capability at Celera after the genome was assembled, and before that spent about eight years at Los Alamos National Laboratory.



*'The most valuable part of [the cloud] is how fast you can move, the speed with which you can deploy new capabilities, the agility to change things, and quickly assemble applications that are out there.'*

John Reynders, Moderna

# Collaboration and Outsourcing Challenges

Pharma company has identified a lead and wants a series of compounds around same scaffold to be synthesized

 **PharmaCorp**

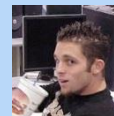
Create Notebook experiment



Project Lead



Exec



Developer

Review & Comment

Review & Comment

Discuss Results

Stages

1

2

3

Share chemistry data


 **ChemService**

Communicate Results

Chemistry Lead (synthesis)

Update Notebook experiment

Share Biology data

 **Bioservices**

Tech Transfer

Screening Lead (screening)

Analyze results

Review & Comment

Share Safety data

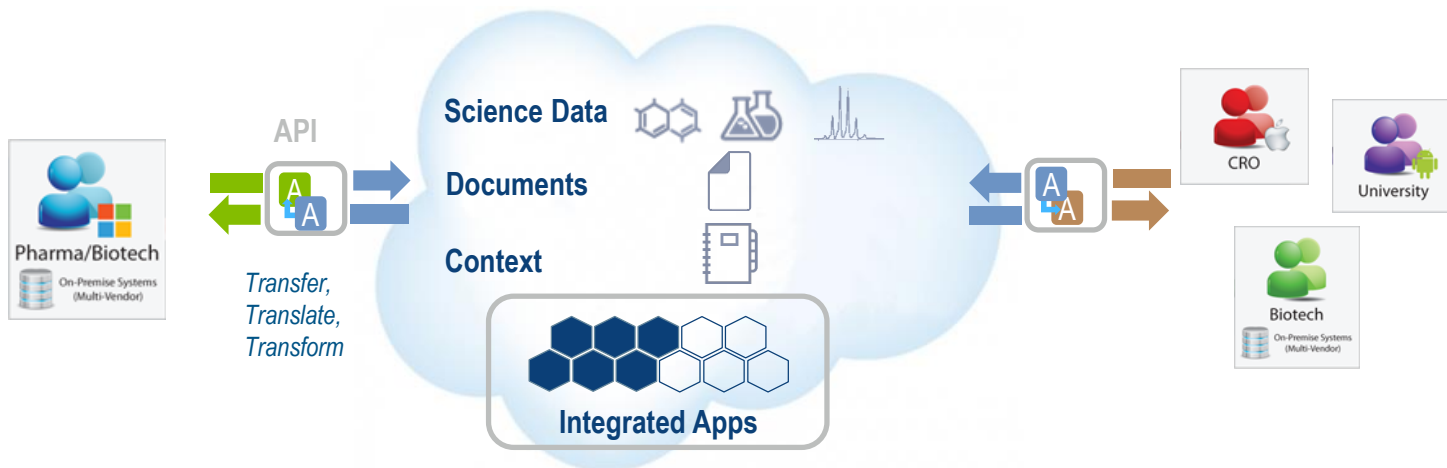
 **ADME SERVICES**

Pre-clinical Lead (safety)

Q/A results



A secure, cloud-based, data sharing, communication, and application platform to support networked scientific projects for all forms of external research collaborations



**ScienceCloud.com** - Secure, Multitenant, Highly Available





# Comprehensive Cloud-Based Scientific Informatics



## Projects

Project data  
Project documents



## Notebook

Capture experiment IP



## Register

Register chemistry



## Biologics

Register biologics  
Analyze biologics sequence



## Assay

Capture & process assay data



## Inventory

Capture material availability & location

# Pipeline Pilot and Enabling Tools



## Pipeline Pilot

Custom Business Rules  
Application Extensions



## Exchange

Share services with  
scientific community



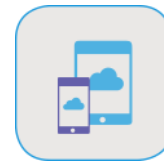
## Analysis

Analyze and visualize  
project data



## Web Tasks

Customer specific tasks



## Mobile

Access ScienceCloud and run  
mobile tasks



# Social



ScienceCloud  
Home

Search Comments



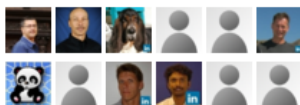
**TON VAN DAELEN**  
BIOVIA

Team



BIOVIA  
Change

Team Members (20)



More...

Apps

- Project Data
- Project Documents
- Experiments (Notebook)
- Analysis (Pipette)
- Authoring (Pipeline Pilot)
- Web Tasks

Show Only User Comments

Select Projects (2/6) ✕

Add Comment:

Write a new comment..

For Project:

Select a project



DEMOACC-67

**Josh Mcinnis** Updated chemistry data. Batches Created: 2

Details Between 1-Mar-2016 1:56 PM and 1-Mar-2016 1:58 PM



DEMOACC-67

**Ton van Daelen** Very promising compound

22-Apr-2015 7:52 AM



DEMOACC-67

**Ton van Daelen** Thank you, I received the compounds

4-Nov-2014 10:44 PM



DEMOACC-67

**Ton van Daelen** Can you upload your new compounds?

4-Nov-2014 5:46 PM



DEMOACC-105

**Ton van Daelen** Updated chemistry data. Batches Created

Details 21-Oct-2014 11:45 PM



DEMOACC-67

**Ton van Daelen** Updated chemistry data. Batches Created

Details 21-Oct-2014 11:44 PM

COMPOUND

IDs SCYX0002224231

Tags

Exact Mass

Molecular Weight 314.35566

Molecular Formula C17 H14 O4 S

Type

Status

Name

Trivial Name

Comments

Stereo Designation

Status Comment

SC-CPD-4413135  
SC-BAT-8427441

IDs	Tags	Salt	Project ID/ Batch Group	Scientist	Registered Date Reporting Date	Registered By
B A T C H	TVACC13421244	None	DEMOACC-67/COMPOUNDS- DEMOACC-67	Ton Van Daelen	17-APR-2014 17-APR-2014	Ton Van Daelen

Share

Calculated Physchem Properties

Analytical

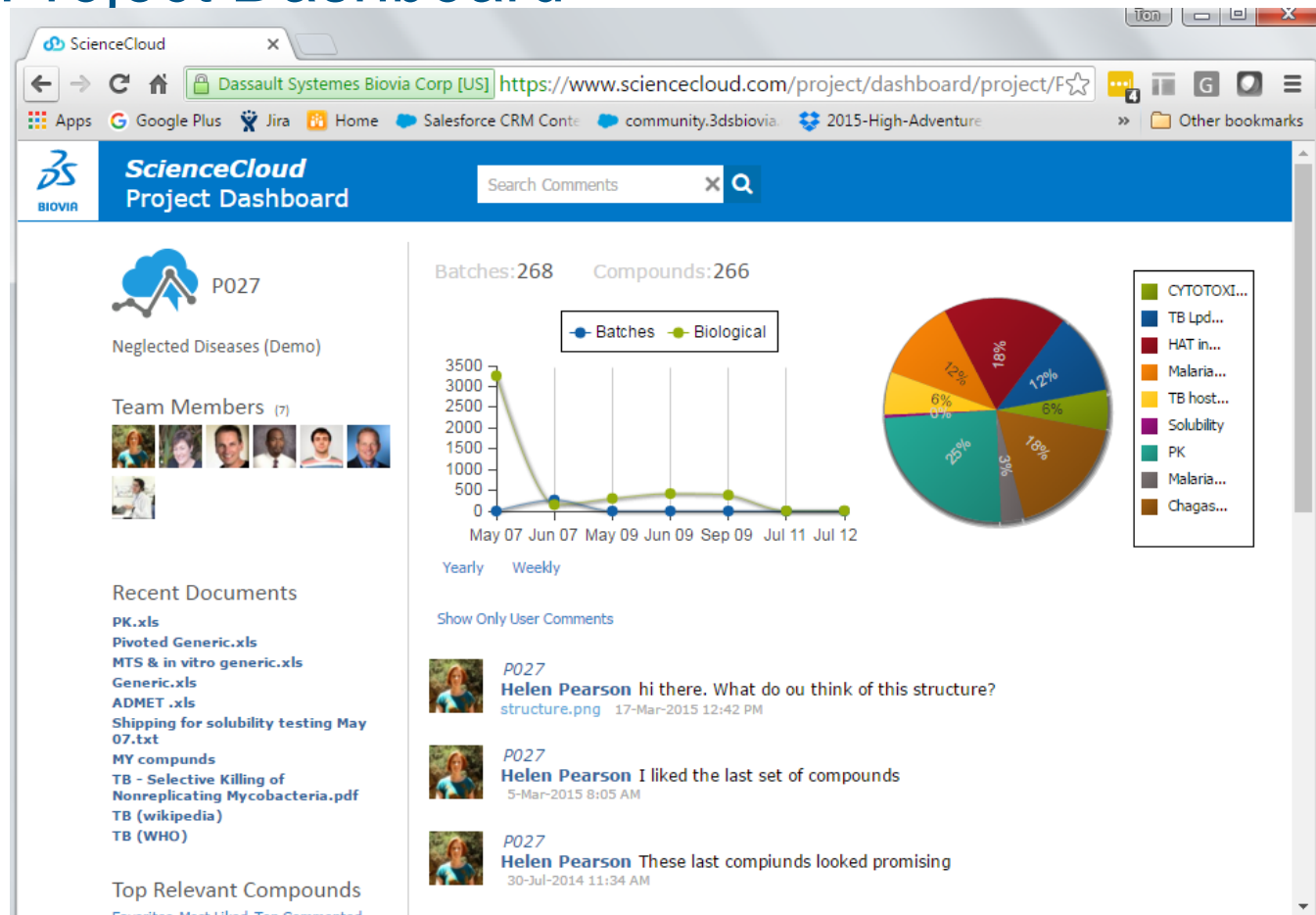
Shipping

PK

Biological & ADMET

Sample SCID	Assay Name Type	Organism Descriptor	Test Parameter Time Point	Dose	Test Value	Test Date Reporting Date	Tester TrialID GroupID
SC-SMP-13890356	CYTOTOXICITY IN VITRO	MRC-5 cells fibroblast	EC50		> 32 ug/mL	03-DEC-2013 17-APR-2014	Rob Brown SCVITCYT

# Project Dashboard

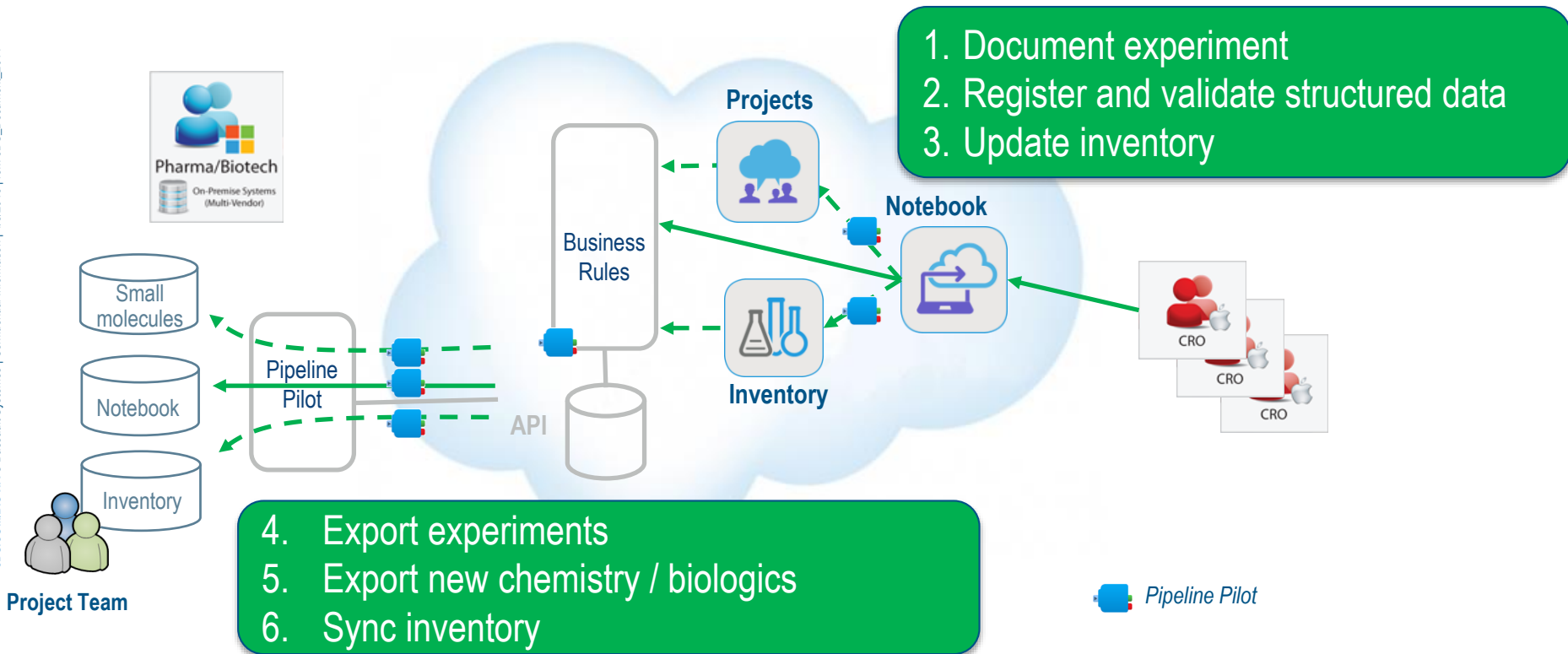


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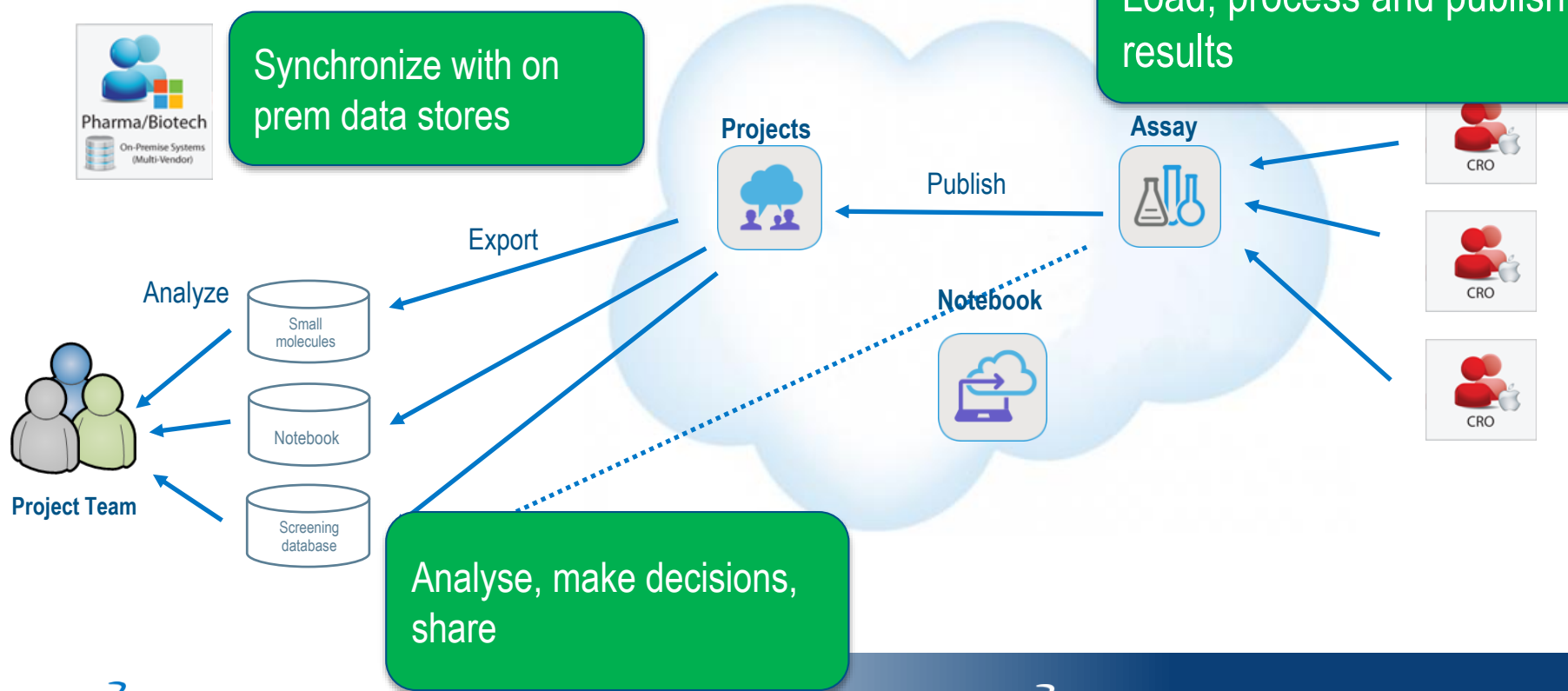
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# Pharma Use Case: Small Molecule and Biologics Outsourcing

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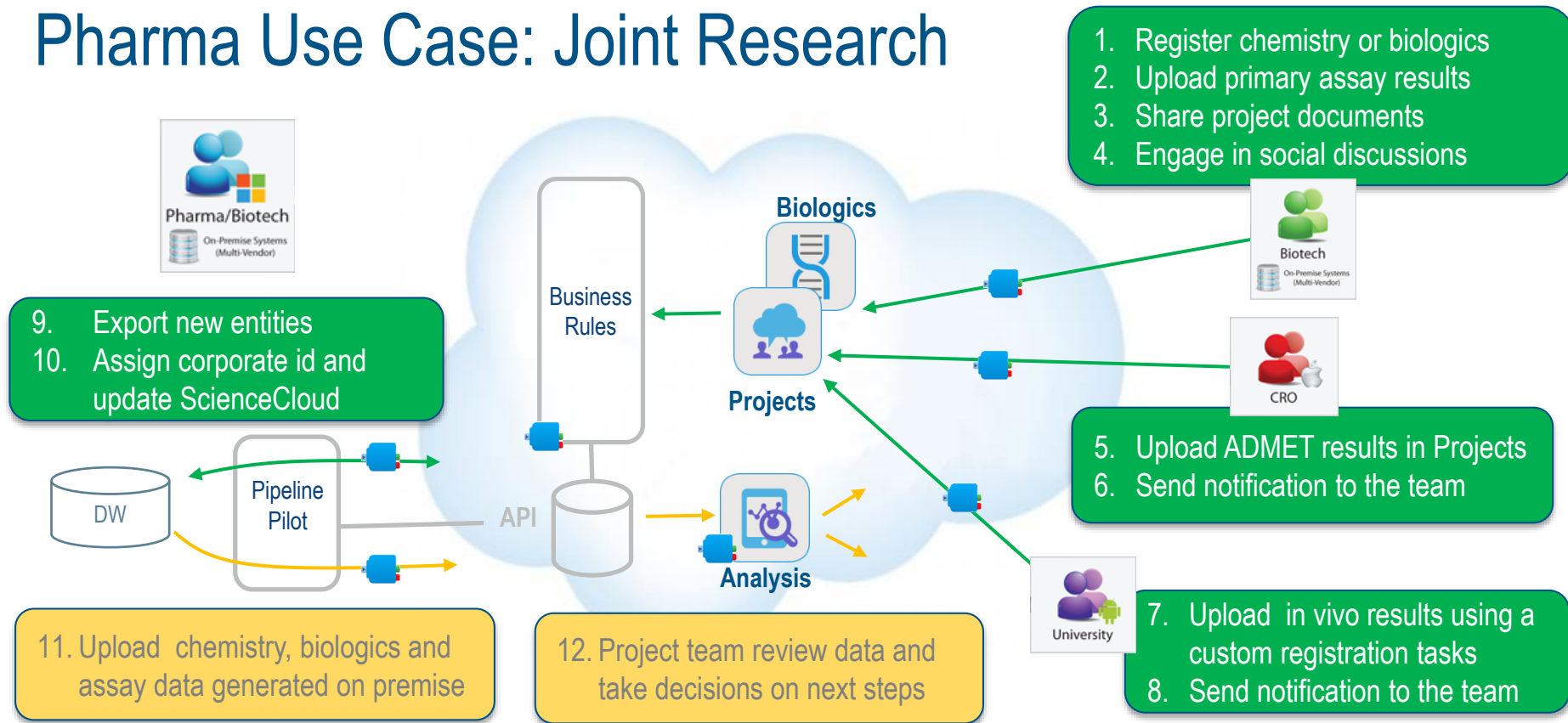


# Pharma Use Case: Screening Partnerships





# Pharma Use Case: Joint Research



# Multi-Layered Security

- Physical Security
  - ◆ Hosted by
  - ◆ Off-site encrypted data backup
  - ◆ Alternate data center disaster recovery
- Network Security
  - ◆ 256-bit encryption (Verisign EV certificate)
  - ◆ Firewall, DMZ, anti-intrusion
  - ◆ Source IP restriction
- Application Security
  - ◆ Username/Password authentication
  - ◆ Project, functionality and data restrictions
  - ◆ Agile Security Development Lifecycle methodology
- Personnel Security
  - ◆ Process management governed by SOPs
  - ◆ Employee security program
  - ◆ Activity logging and monitoring



# Wrap Up

- ScienceCloud is mature SaaS platform supporting external collaborations, increasing business agility, and reducing your IT footprint.
- Learn more?
  - Visit us at booth 416
  - Contact Ton van Daelen  
[ton.vandaelen@3ds.com](mailto:ton.vandaelen@3ds.com)



