



***Scott L. DuVall, PhD***

Director, VINCI

VA Salt Lake City Health Care System

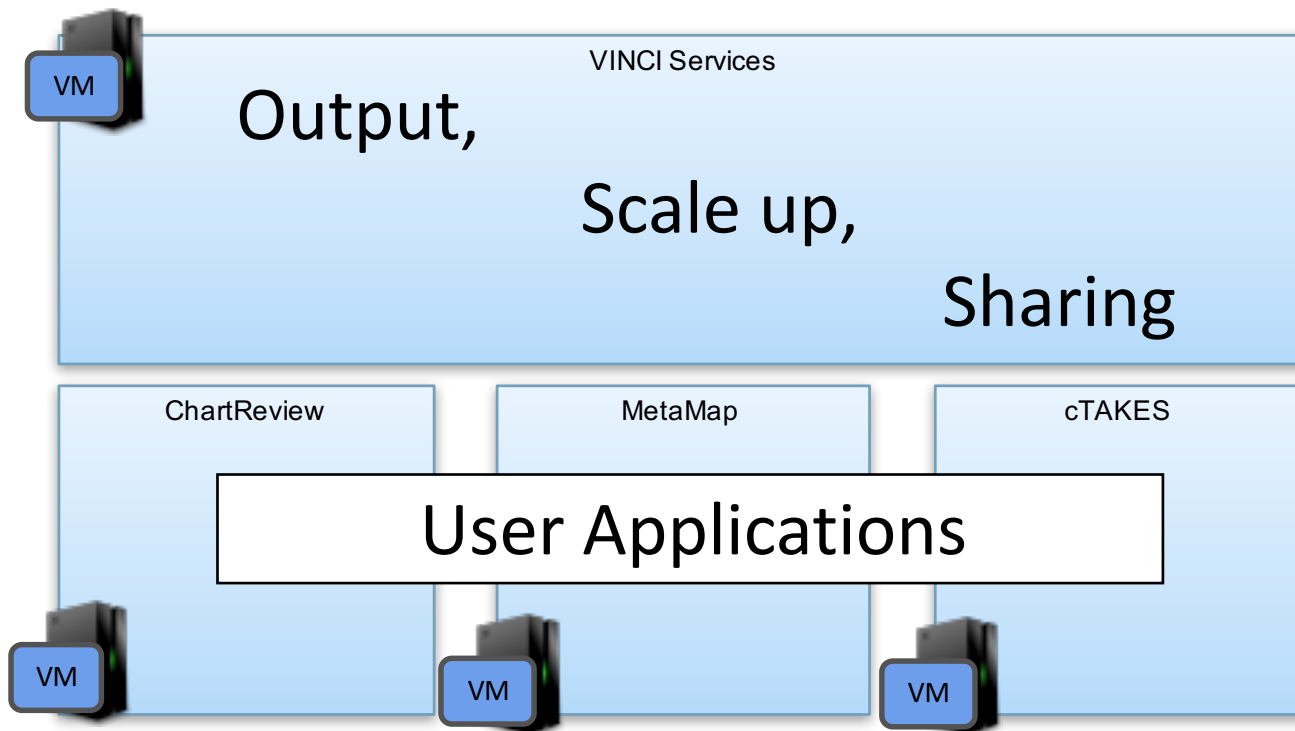


DuVallScott

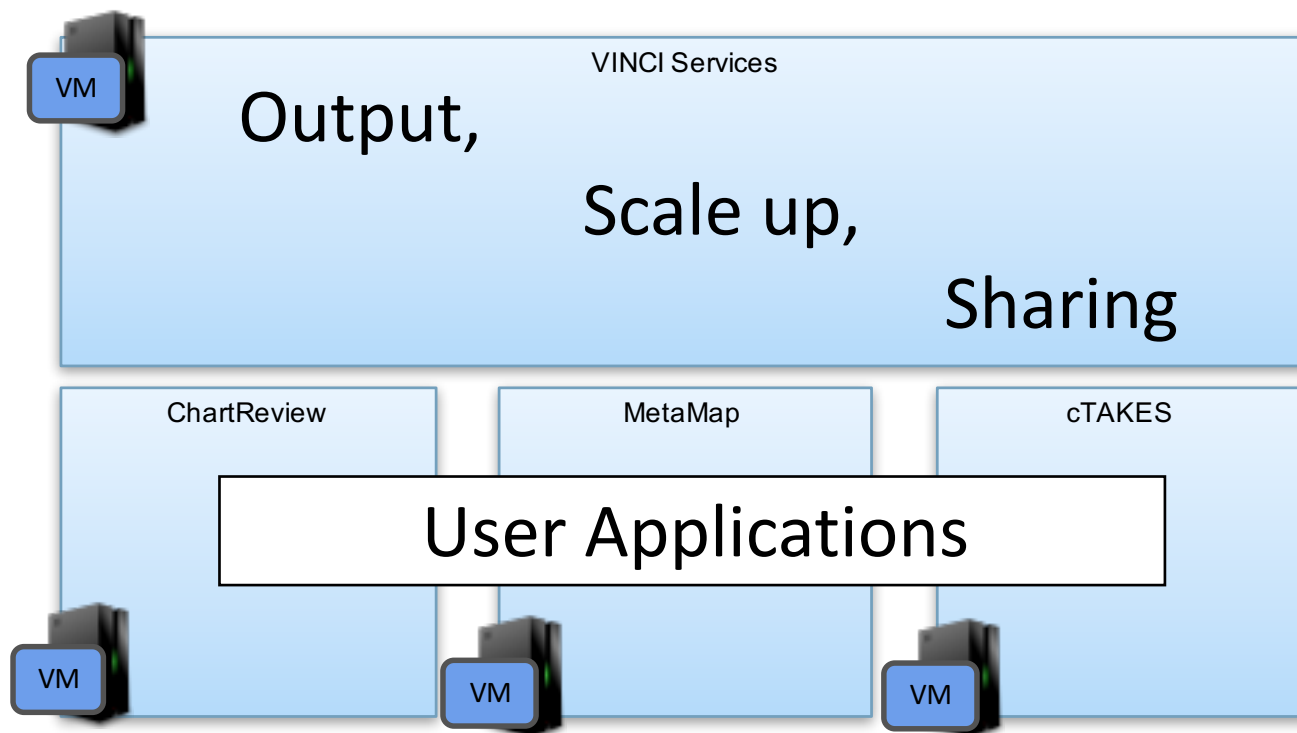
Capacity for NLP in VA Today



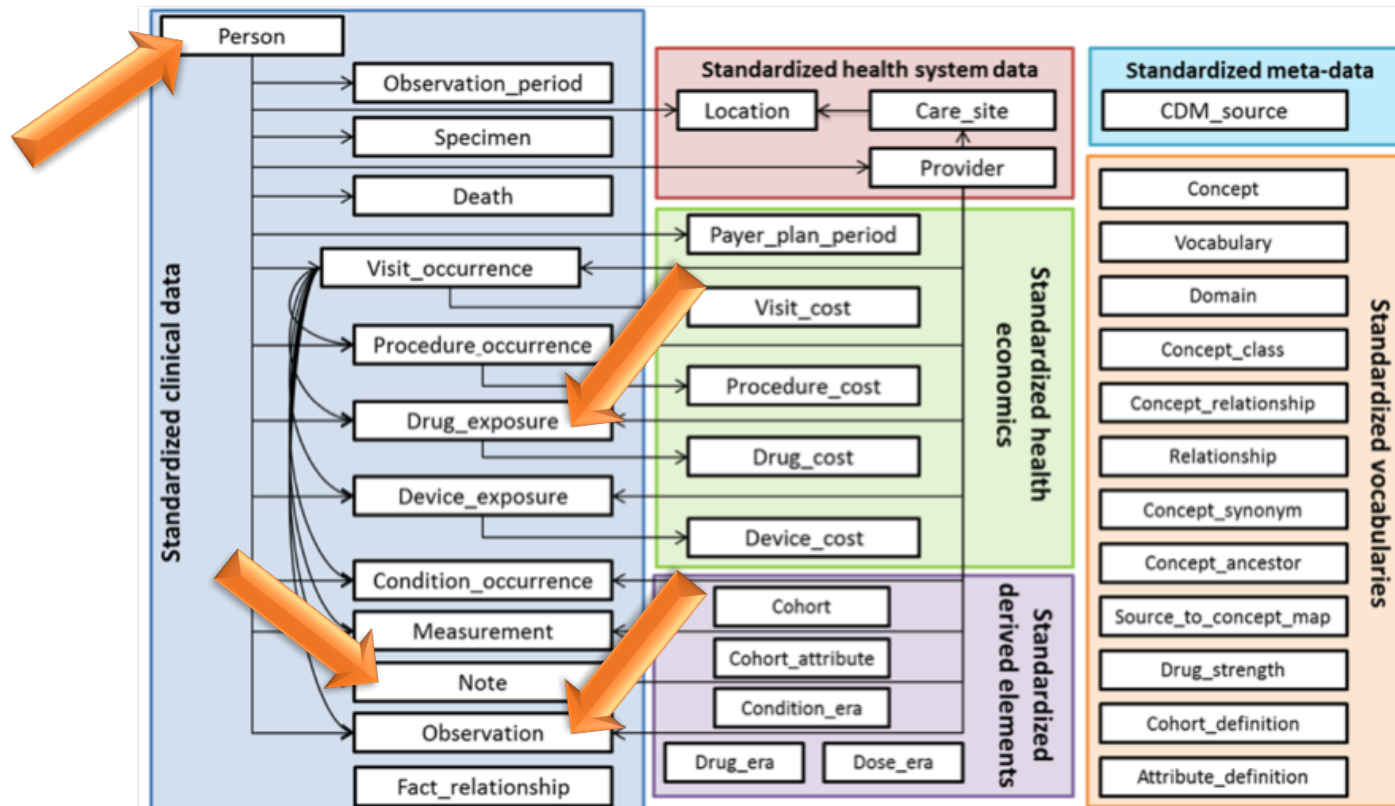
The State of NLP



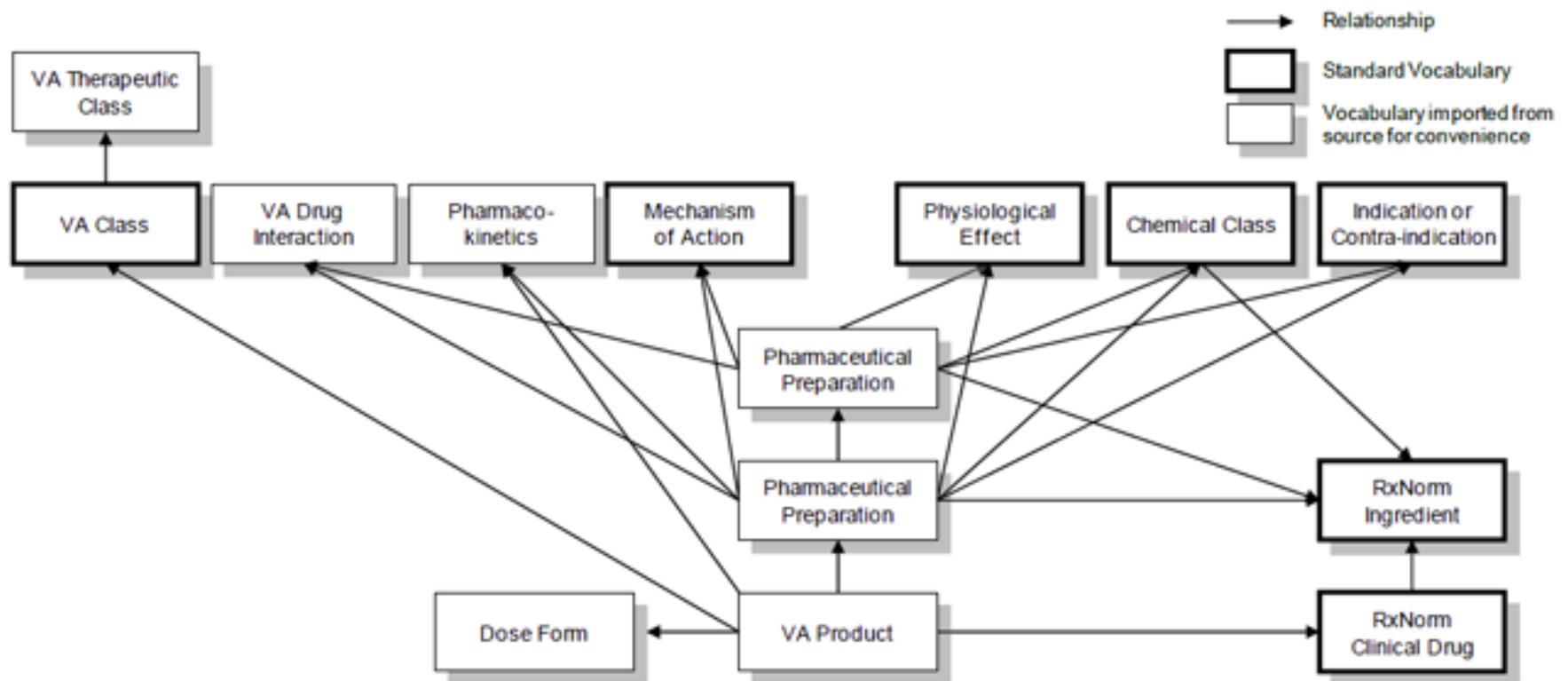
# NLP Architecture



# NLP Architecture



# NLP Output in OMOP

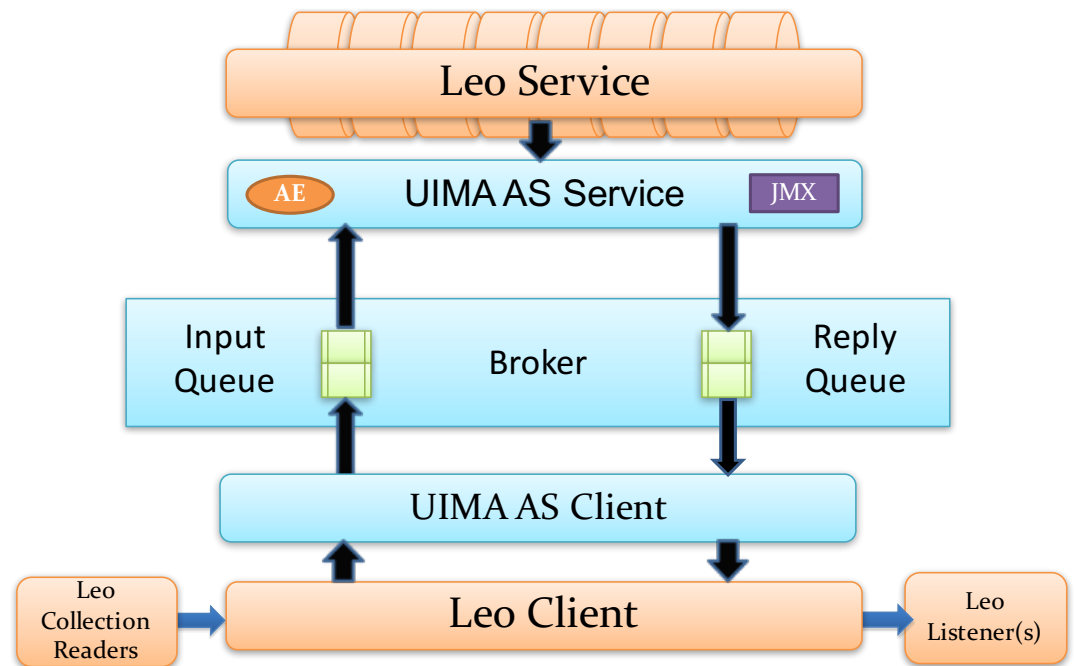


NLP Output in OMOP



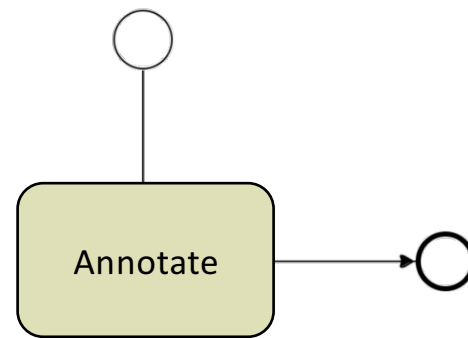


# MetaMap

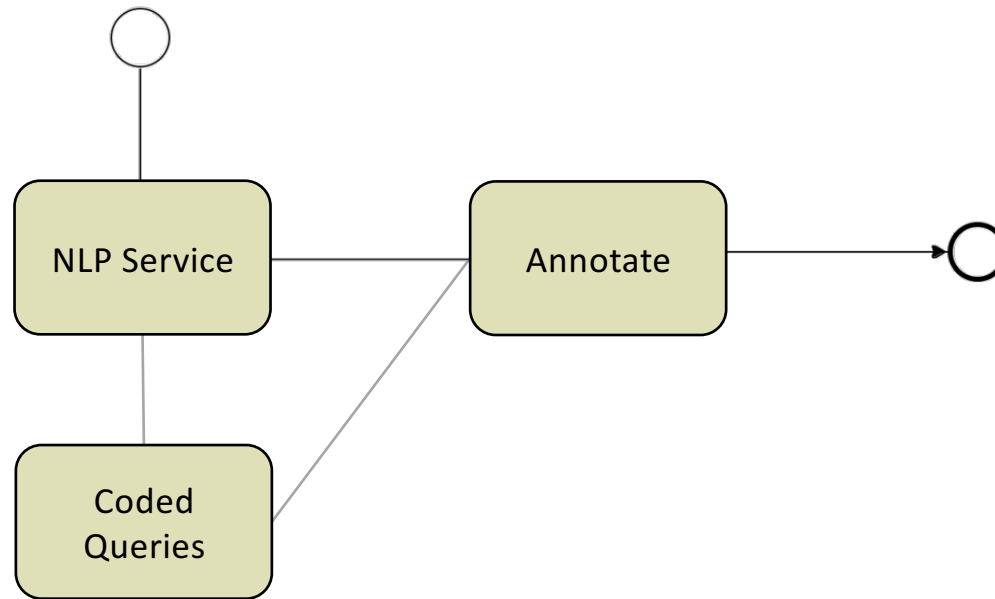


Leo

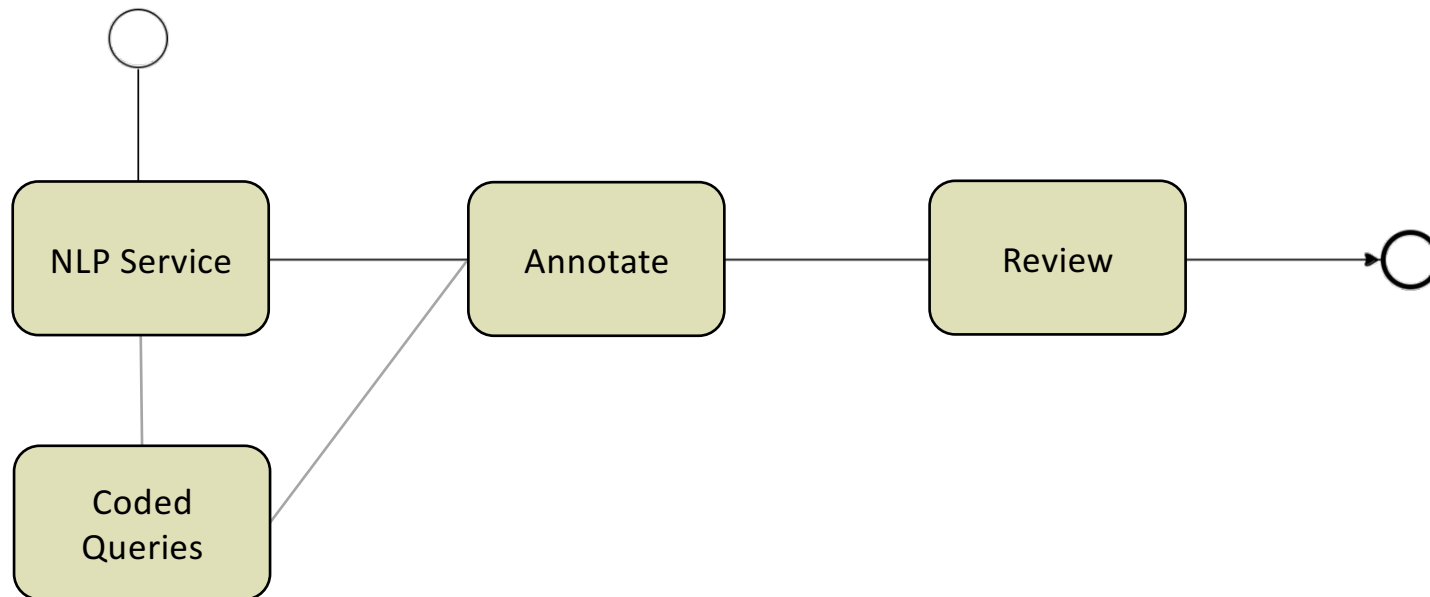




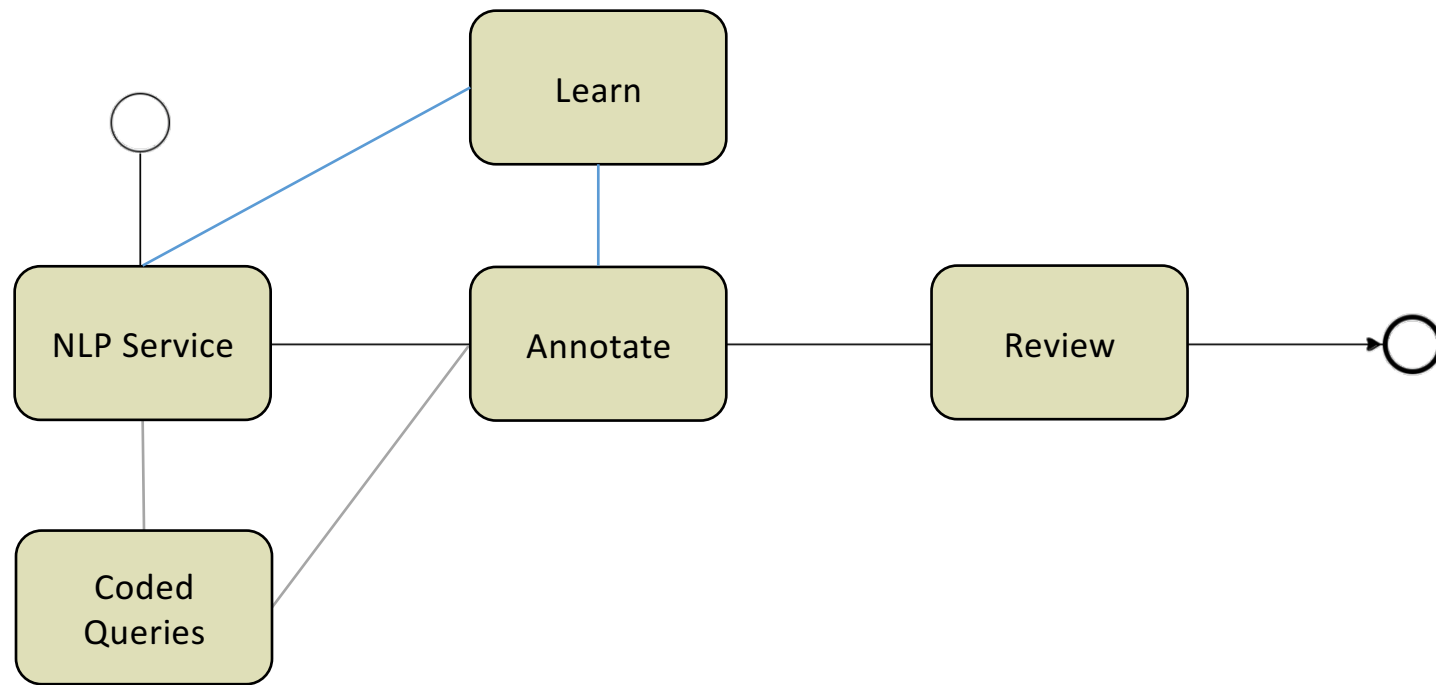
# ChartReview



# ChartReview



# ChartReview



# ChartReview

Home Admin

Help Settings Logout ( )

Annotation

Task

Done Save Hold/Next Submit/Next Task Info

Task Name: Blood Transfusions Associated with Dialysis

Principal: Chronic Kidney Disease Patient 0001

Annotations

Evidence of Transfusion

Indication for Transfusion

Relevant Laboratory Value

All Annotations

Span Class Creation Date

transfused with 2 units RBC. Evidence of Transfusion 08/23/2014

Is there indication of pre and post transfusion Hemoglobin values?

Yes

Is there a mention of the cause of anemia?

Yes

CKD Diagnoses

List (39 of 39)

Detail: Right Description Wrap

| Diagnosis D | Code   | Description                                    | Type       |
|-------------|--------|--|------------|
| 01/12/2011  | V65.40 | Other Unspecified Counseling                   | Outpatient |
| 01/14/2011  | V65.40 | Other Unspecified Counseling                   | Outpatient |
| 01/20/2011  | V45.11 | Renal Dialysis Status                          | Outpatient |
| 01/20/2011  | 250.42 | Diabetes with renal manifestations, type II    | Outpatient |
| 01/22/2011  | V45.11 | Renal Dialysis Status                          | Outpatient |
| 01/24/2011  | 280.0  | Iron deficiency anemia secondary to blood loss | Outpatient |
| 01/24/2011  | 250.42 | Diabetes with renal manifestations, type II    | Outpatient |

View in new tab Done

Classify: Indication for Transfusion

CKD Medications

List (432 of 432)

Detail: Right Description Wrap

| Medication Date | Medication Name        | Days Supply |
|-----------------|------------------------|-------------|
| 12/14/2010      | Metformin 500mg TAB    | 30          |
| 12/14/2010      | Insulin (Injectable)   | 30          |
| 01/12/2011      | Metformin 500mg TAB    | 30          |
| 01/12/2011      | Insulin (Injectable)   | 30          |
| 01/24/2011      | Packed Red Blood Cells | 1           |
| 02/13/2011      | Metformin 500mg TAB    | 30          |
| 02/13/2011      | Insulin (Injectable)   | 30          |

View in new tab Done

Classify: Evidence of Transfusion

CKD Note

List (221 of 221) 4 2

Detail: Hide Description Wrap

| Reference Date | Title                    |
|----------------|--------------------------|
| 01/24/2011     | Nephrology Progress Note |
| 02/13/2011     | Nursing Note             |
| 02/13/2011     | Admission Report         |
| 02/15/2011     | Inpatient Progress Note  |
| 02/16/2011     | Inpatient Progress Note  |
| 02/17/2011     | Inpatient Progress Note  |
| 02/18/2011     | Inpatient Progress Note  |
| 02/19/2011     | Inpatient Progress Note  |
| 02/20/2011     | Discharge Summary        |

Done

Classify:

01/24/2011  
Nephrology Progress Note  
Treating Provider: VA 00123, MD  
Patient: CKD Patient 001  
  
HPI: 68 year old man with history of type 2 diabetes, ESRD with dialysis on M/W/F.  
  
Diabetes mostly under control. Patient currently on metformin and insulin.  
  
The patient presents with anemia (Hgb of 9g/dL) after some blood loss from an outpatient procedure. Packed red blood cells were ordered and the patient was transfused with 2 units RBC. After transfusion, patient's Hgb was 12 g/dL.

# ChartReview

ChartReview

HomeAdmin

Annotation

Task

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Task Name: Blood Transfusions Associated with Dialysis  
Principal: Chronic Kidney Disease Patient 0001

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Evidence of Transfusion

Indication for Transfusion

Relevant Laboratory Value

All Annotations

SpanClassCreation Date

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Is there a mention of the cause of anemia?  
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CKD Diagnoses

List (39 of 39)

Detail: Right

Description

| Diagnosis D | Code   | Description |
|-------------|--------|-------------|
| 01/12/2011  | V65.40 | Other U     |
| 01/14/2011  | V65.40 | Other U     |
| 01/20/2011  | V45.11 | Renal D     |
| 01/20/2011  | 250.42 | Diabete     |
| 01/22/2011  | V45.11 | Renal D     |
| 01/24/2011  | 280.0  | Iron def    |
| 01/24/2011  | 250.42 | Diabete     |

View in new tabDone

Classify: Indication for Transfusion

CKD Note

List (221 of 221)

Detail: Hide

Description

Reference Date

|            |
|------------|
| 01/24/2011 |
| 02/13/2011 |
| 02/13/2011 |
| 02/15/2011 |
| 02/16/2011 |
| 02/17/2011 |
| 02/18/2011 |
| 02/19/2011 |
| 02/20/2011 |

Questions

1. TestSection2

1.1. Save as "a" to enable the rest of the items

1.2. Numeric Test

1.3. Text Test

1.4. Test Date

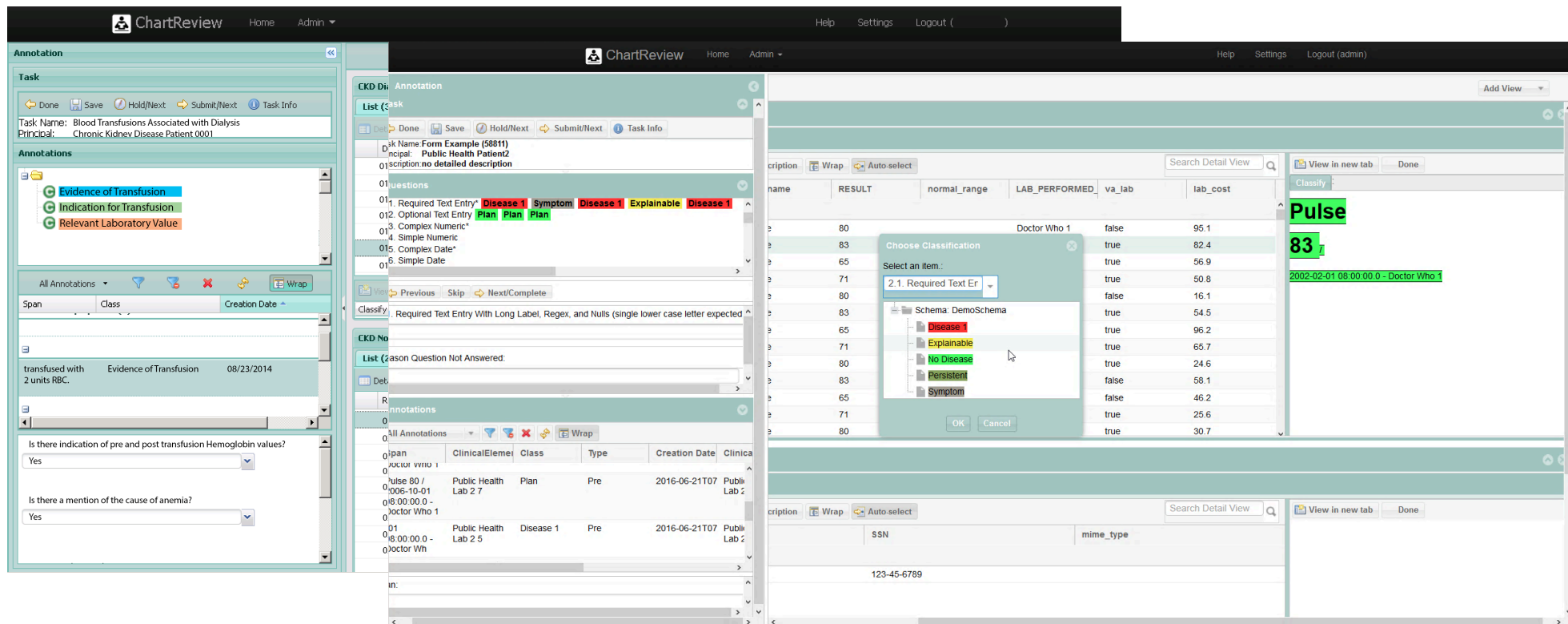
1.5. Test Single Radio

PreviousSkipNext/Complete

1.1. Save as "a" to enable the rest of the items:

a

# ChartReview



# ChartReview

ChartReview Home Admin Help Settings Logout ( )

**Annotation**

Task

Done Save Hold/Next Submit/Next Task Info

Task Name: Blood Transfusions Associated with Dialysis  
Principal: Chronic Kidney Disease Patient 0001

**Annotations**

- Evidence of Transfusion
- Indication for Transfusion
- Relevant Laboratory Value

All Annotations Span Class Creation Date

transfused with 2 units RBC. Evidence of Transfusion 08/23/2014

Is there indication of pre and post transfusion Hemoglobin values?  
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Is there a mention of the cause of anemia?  
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**CKD Diagnoses**

List (39 of 39)

| Diagnosis ID | Code   | Description                   |
|--------------|--------|-------------------------------|
| 01/12/2011   | V65.40 | Other Unspecified Counseling  |
| 01/14/2011   | V65.40 | Other Unspecified Counseling  |
| 01/20/2011   | V45.11 | Renal Dialysis Status         |
| 01/20/2011   | 250.42 | Diabetes with renal manifest  |
| 01/22/2011   | V45.11 | Renal Dialysis Status         |
| 01/24/2011   | 280.0  | Iron deficiency anemia second |
| 01/24/2011   | 250.42 | Diabetes with renal manifest  |

**CKD Note**

List (221 of 221)

| Reference Date | Title                   |
|----------------|-------------------------|
| 01/24/2011     | Nephrology              |
| 02/13/2011     | Nursing Note            |
| 02/13/2011     | Admission               |
| 02/15/2011     | Inpatient               |
| 02/16/2011     | Inpatient               |
| 02/17/2011     | Inpatient               |
| 02/18/2011     | Inpatient               |
| 02/19/2011     | Inpatient Progress Note |
| 02/20/2011     | Discharge Summary       |

**Questions**

1.5. Test Single Radio

1.6. Test Single Dropdown

1.7. Test Multi Checklist

1.8. Test Multi Dropdown

1.9. Test Rank List

2. Exhaustive Test Section

2.1. Required Text Entry\* Disease 1 Symptom Disease 1 Explainable Disease 1

2.2. Optional Text Entry Plan Plan

2.3. Complex Numeric\*

2.4. Simple Numeric

2.5. Complex Date\*

2.6. Simple Date

2.7. Text test (a) and Dropdown

2.8. Numeric Test (>10) and Radio

Previous Skip Next/Complete

**Questions**

1.9. Test Rank List

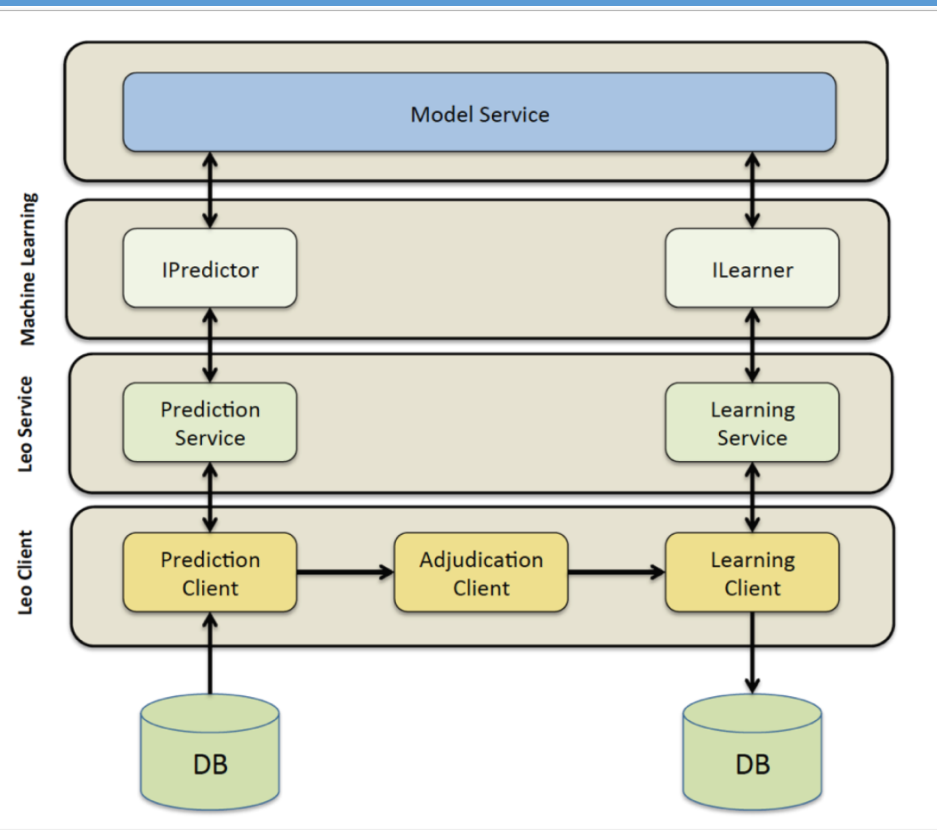
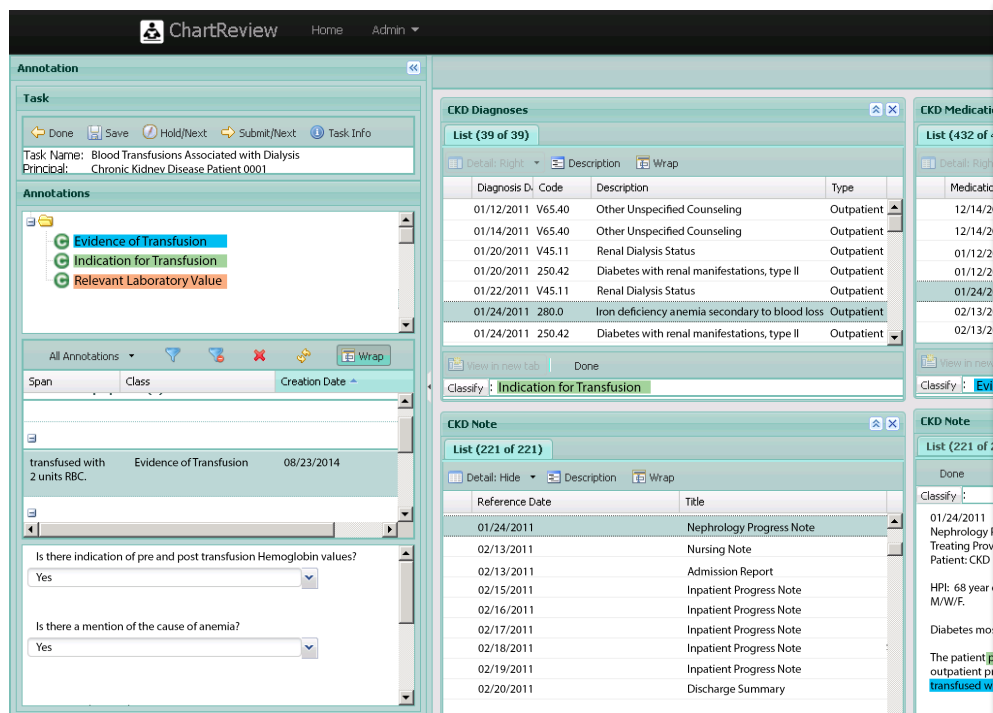
Option 2

Option 1

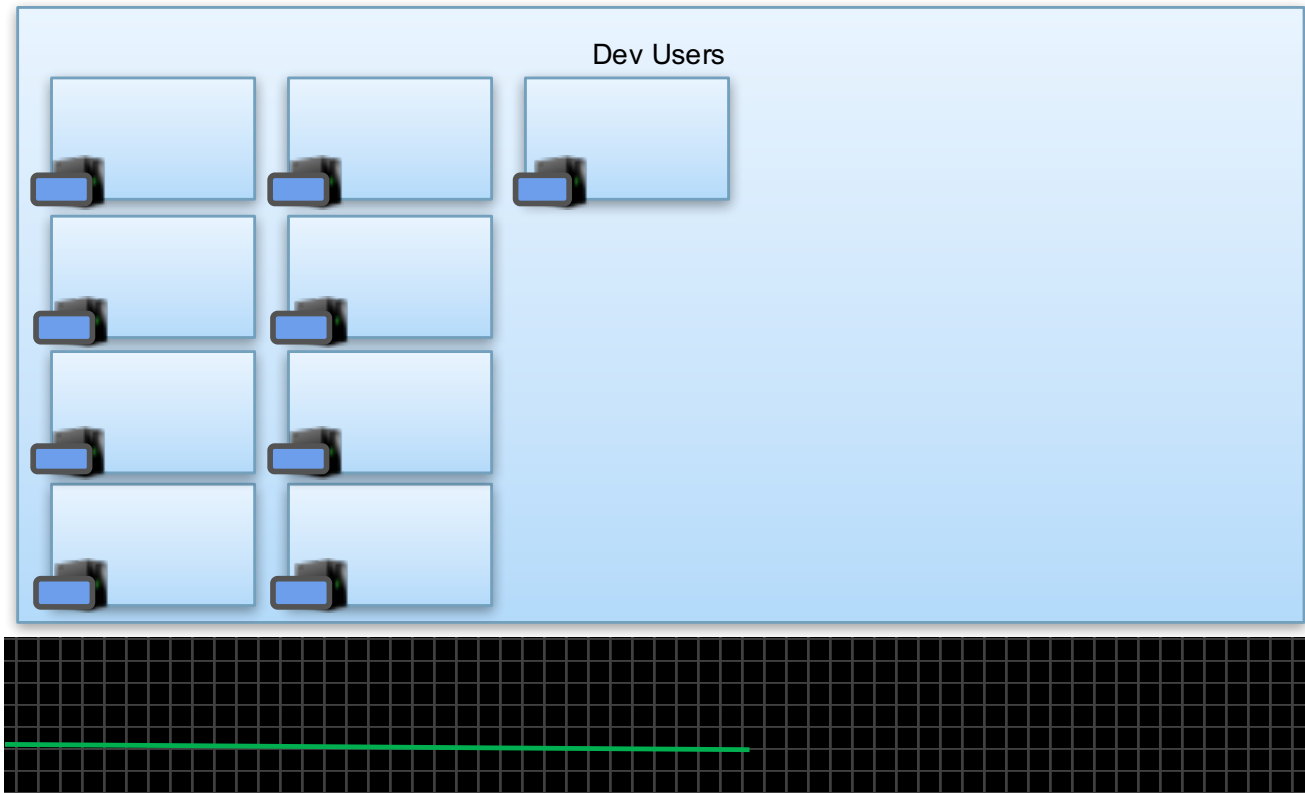
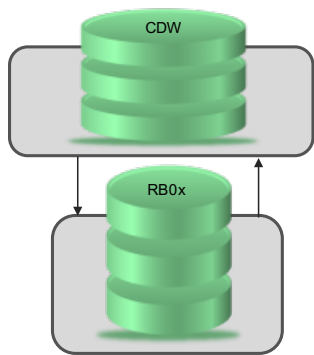
Drag and drop to reorganize

# ChartReview

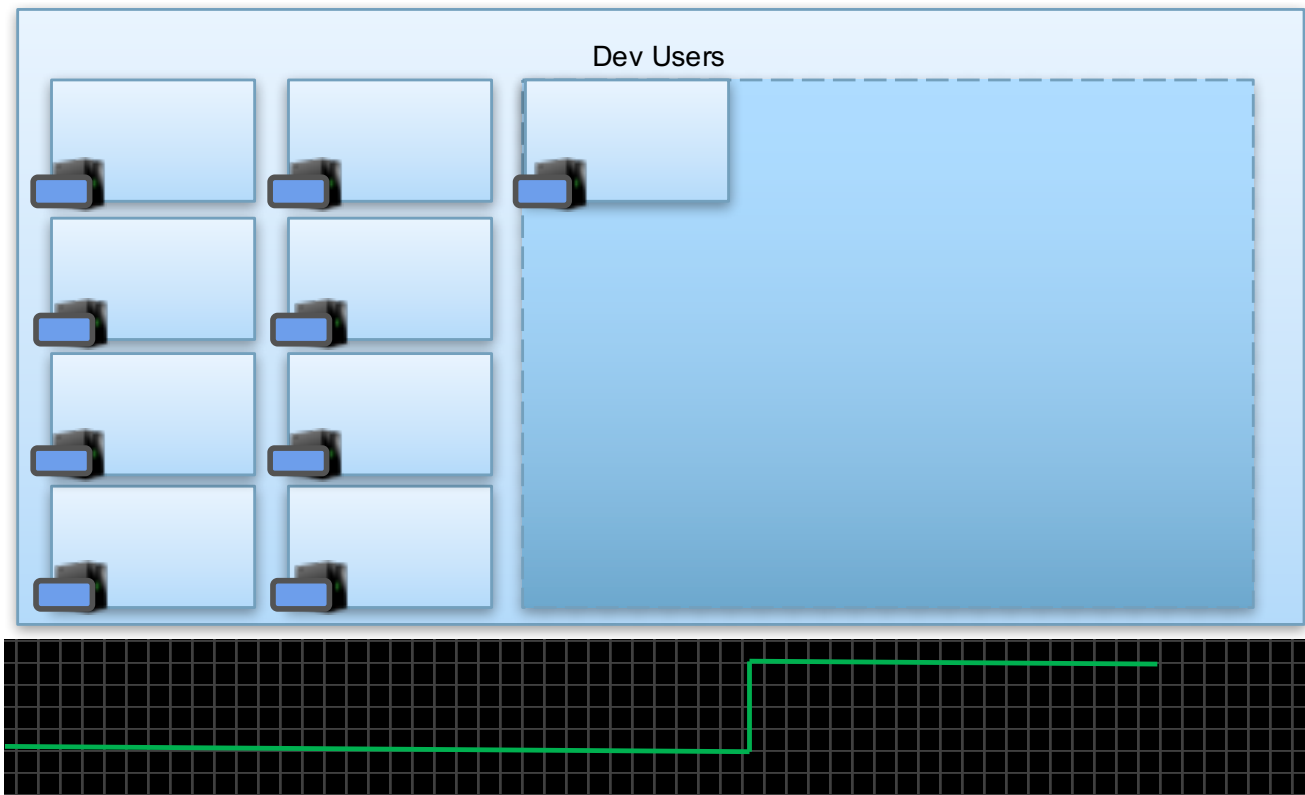
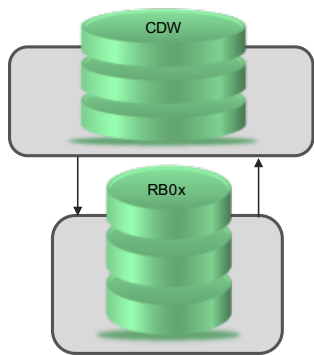




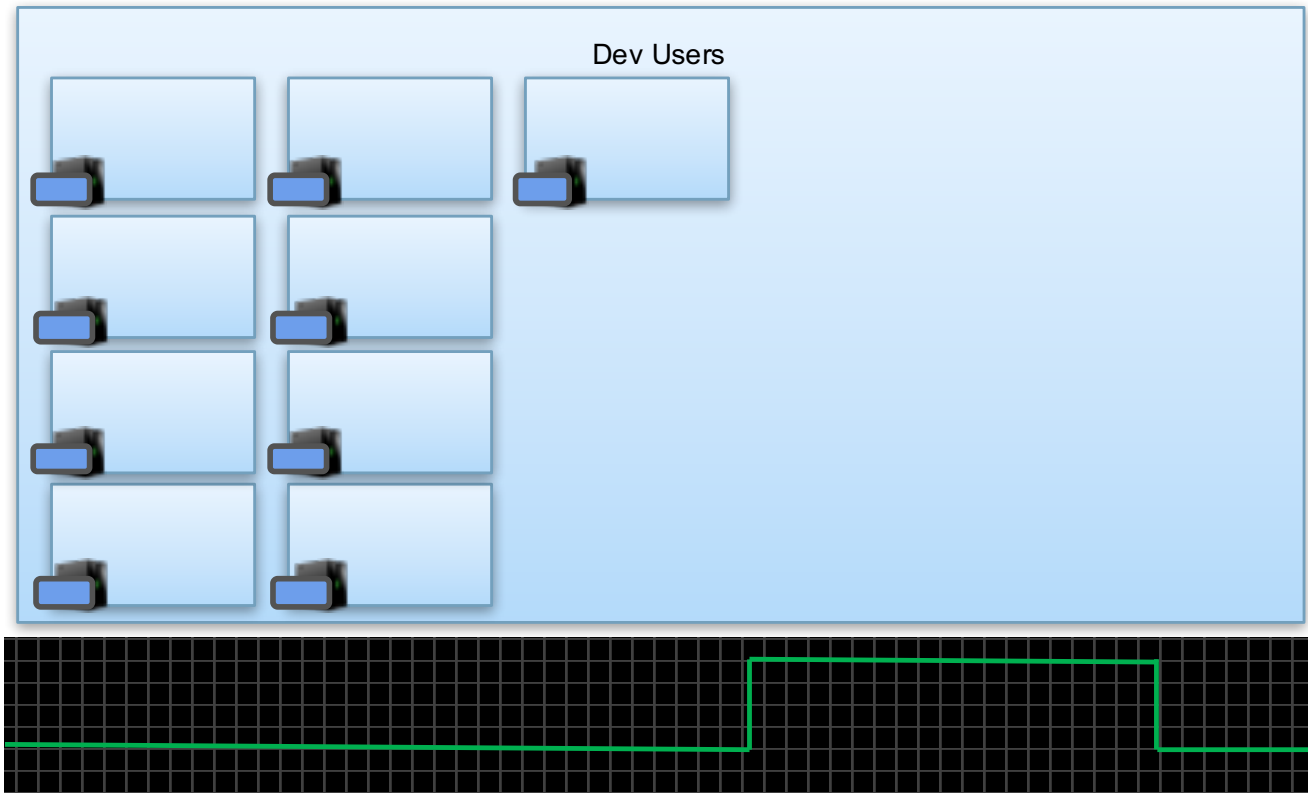
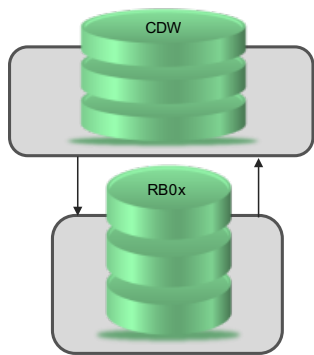
# ChartReview



# NLP Architecture



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