"Why API?" (and other Architectural Anecdotes)

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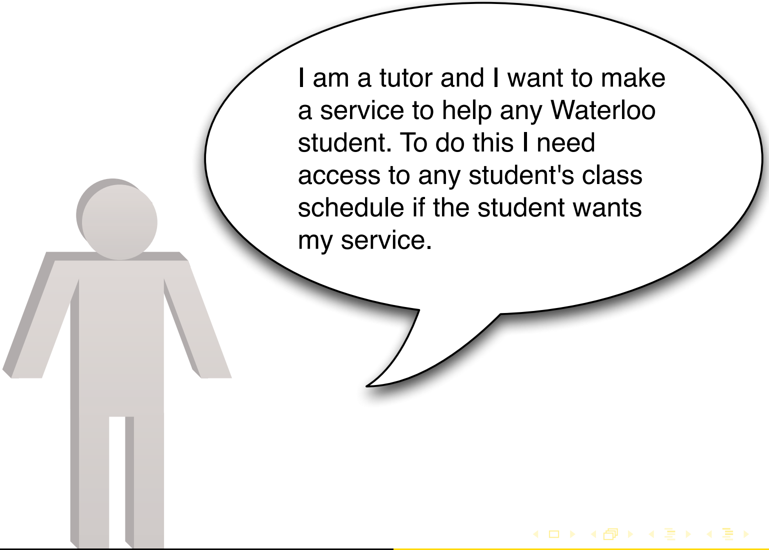
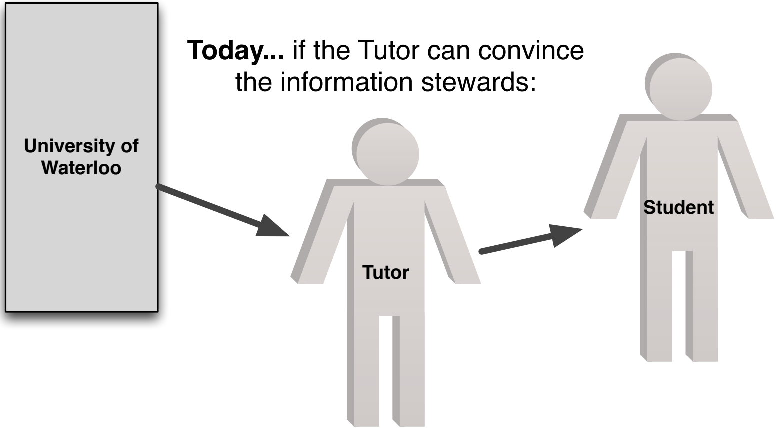
The User Story



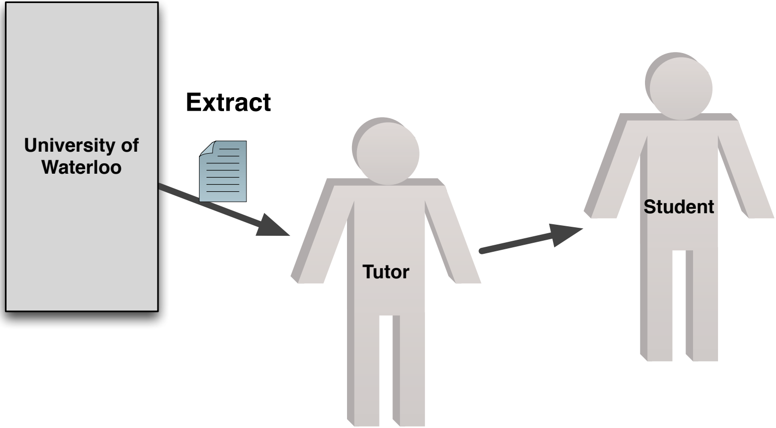
I am a tutor and I want to make a service to help any Waterloo student. To do this I need access to any student's class schedule if the student wants my service.

The User Story: Setup

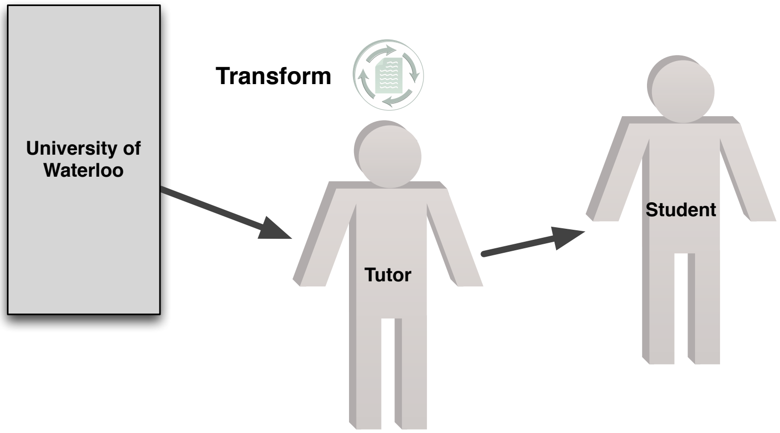


Today... if the Tutor can convince the information stewards:

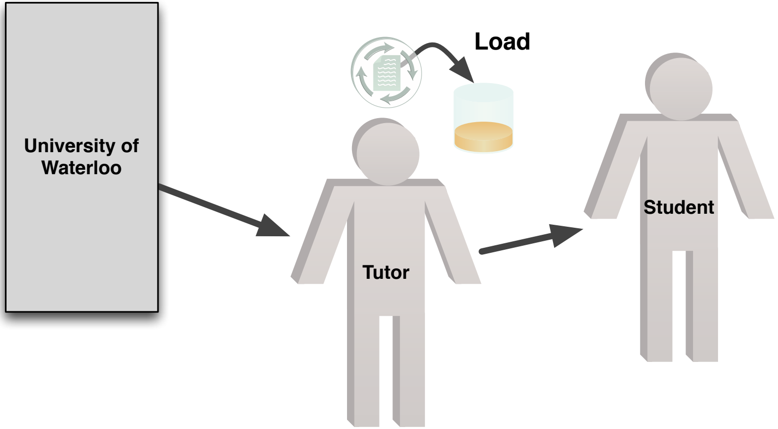
The User Story: Extract



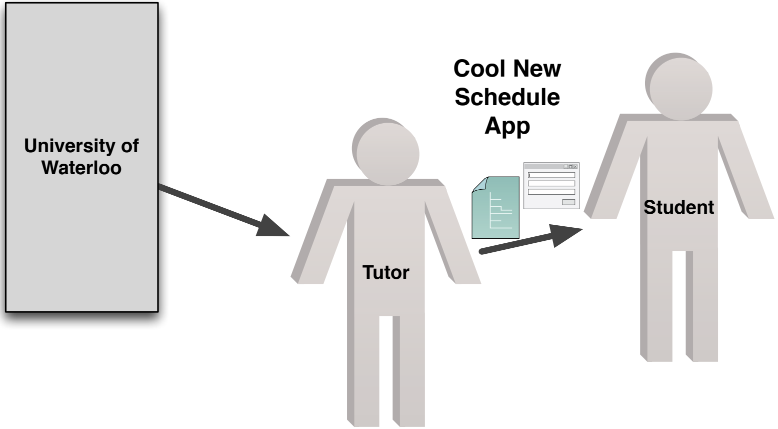
The User Story: Transform



The User Story: Load



The User Story: Use



The User Story: Costs

- Increased Risk.

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The User Story: Costs

- Increased Risk. (Copies of data = custodianship).
- Increased Complexity. (ETL code maintenance).
- Innovator pain. (“I just want to make an app not ETL.”).

The User Experience (UX)

How does the tutor feel?

The User Experience (UX)

How does the tutor feel?

Source: `http://cdn.evilautie.org/wp-content/uploads/2012/10/sadsmiley.png`

The User Interface (UI)

As a data user, what is the interface like?

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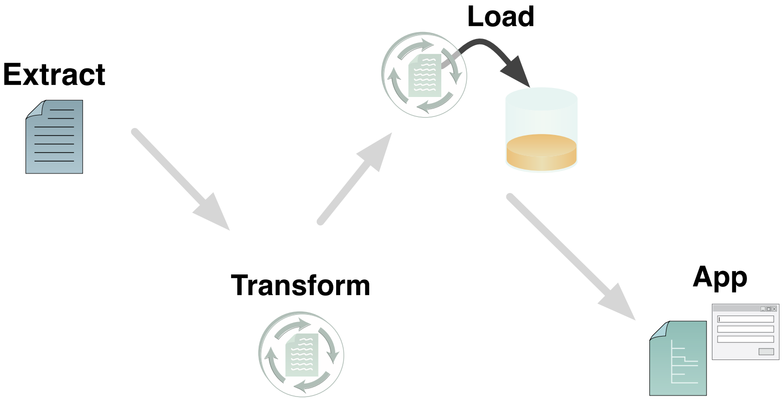


The User Interface (UI)

- "Extract":
  1. Download Extract File
  2. Store the Extract File
- "Transform":
  3. Validate and Pre-Process the Extract File
  4. Reconstruct Relationships
- "Load":
  5. Insert into Database
- "Use Data"

Five steps just to use the data.

The User Interface (UI)

Could we improve the "Data User Interface"?

The User Interface (UI)

Could we improve the "Data User Interface"?

DUI

The User Interface (UI)

Could we improve the "Data User Interface"?

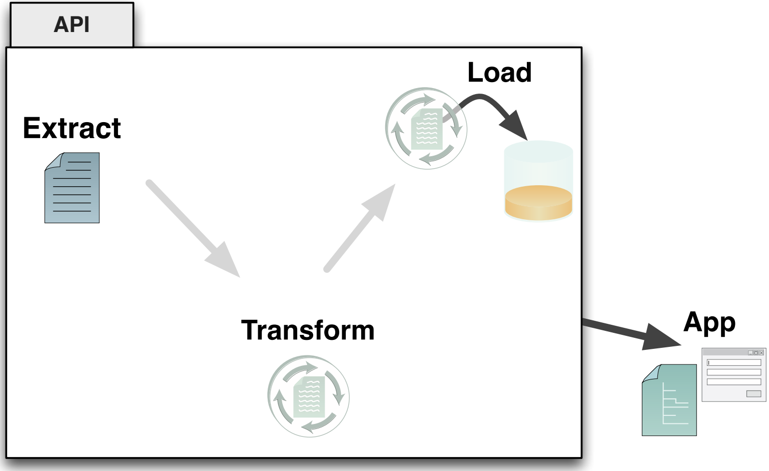
DUI?

The User Interface (UI)

The "Application Programming Interface":

API

The Application Programming Interface (API)



The Application Programming Interface (API)

- "Use Data"

The Application Programming Interface (API)

- "Use Data"

... and that's it.

API Benefits

- Less Risk.

API Benefits

- Less Risk. (Data not copied.)

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- Single Point of Control.

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API Benefits

- Less Risk. (Data not copied.)
- Single Point of Control. *
- Less Complexity. (ETL is done once upstream.)
- Innovator innovates. ("I'm able to make my app!")

Design Feature: Single Point of Control

- Monitoring
- Metrics

Design Feature: Single Point of Control

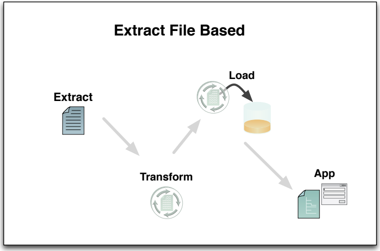
- Monitoring / Audit - Who, What, When?
- Metrics / Analytics - How?

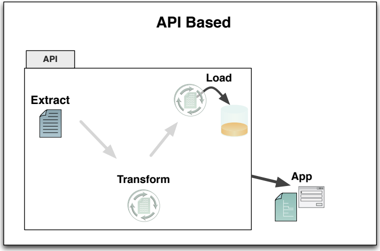
We can manage what we can measure.

Effective (adj.) adequate to accomplish a purpose; producing the intended or expected result.

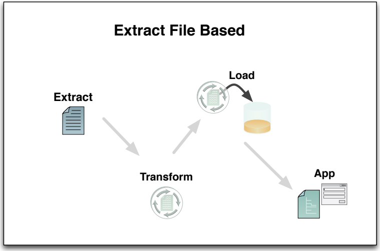
Efficient (adj.) performing or functioning in the best possible manner with the least waste of time and effort.

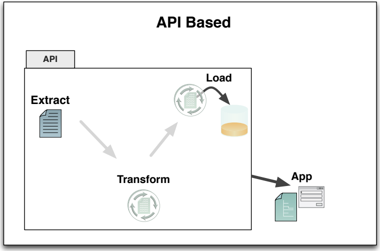
Effectiveness + Efficiency





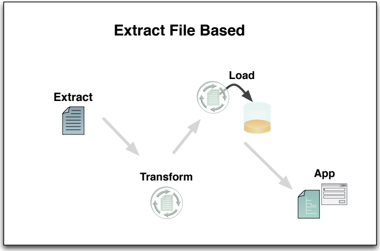
Effectiveness + Efficiency

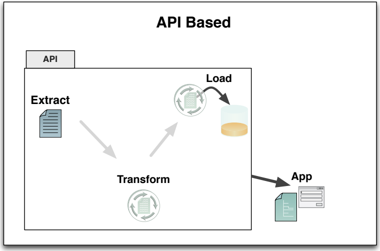




both effective

Effectiveness + Efficiency





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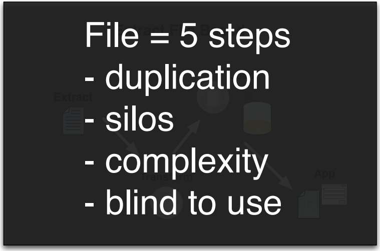
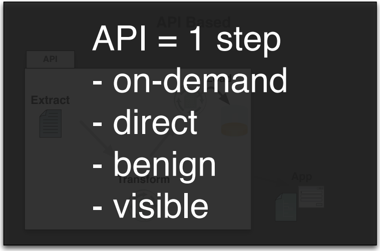
less efficient

Effectiveness + Efficiency



File = 5 steps
- duplication
- silos
- complexity
- blind to use



API = 1 step
- on-demand
- direct
- benign
- visible

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less efficient