

Rethinking Technical Presentations: The Assertion-Evidence Approach

Adapted from
Work of
Michael Alley
College of Engineering
Penn State

**Xenon headlights illuminate signs better
than halogen headlights do**

Halogen Headlight



Xenon Headlight



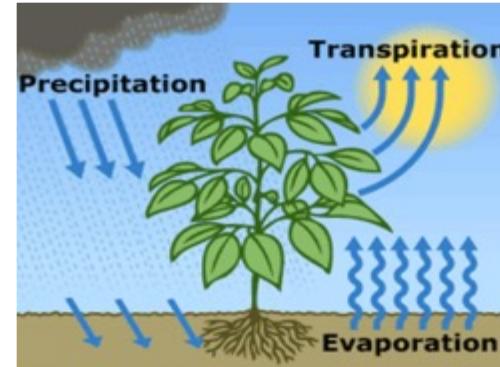
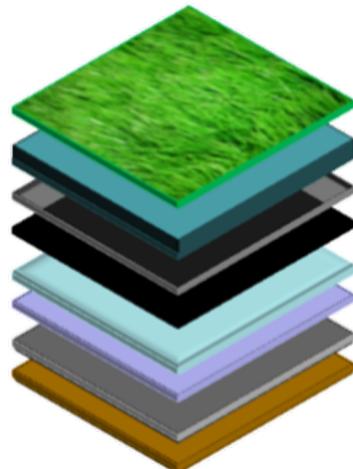
[Alley, 2013]

[Sylvania, 2008]

**Build your talk on
messages**

**not
on topics**

**Support your messages
with visual evidence**



**not
bullet points**

Build your talk on messages

Urban Temperatures

- Often warmer than surrounding areas
- Caused by materials in roofs and roads
- Also caused by lack of shade and vegetation
- Lead to higher temperatures in buildings
- Require more energy for cooling



Build your talk on
messages

Urban Temperatures

Temperatures in urban centers are often much warmer than in surrounding rural areas



The first step is to write a sentence headline that states the main message of the slide

Xenon headlights illuminate signs better than halogen headlights do



Halogen Headlight



Xenon Headlight



[Alley, 2013]

[Sylvania, 2008]

sentence
headline

The second step is to find or create visual evidence that supports the sentence headline

Xenon headlights illuminate signs better than halogen headlights do

Halogen Headlight



Xenon Headlight



[Alley, 2013]

[Sylvania, 2008]



visual
evidence

Since its construction in 1952, traffic across the bridge has grown exponentially

1952

1.1 million vehicles



Since its construction in 1952, traffic across the bridge has grown exponentially

1952
1.1 million

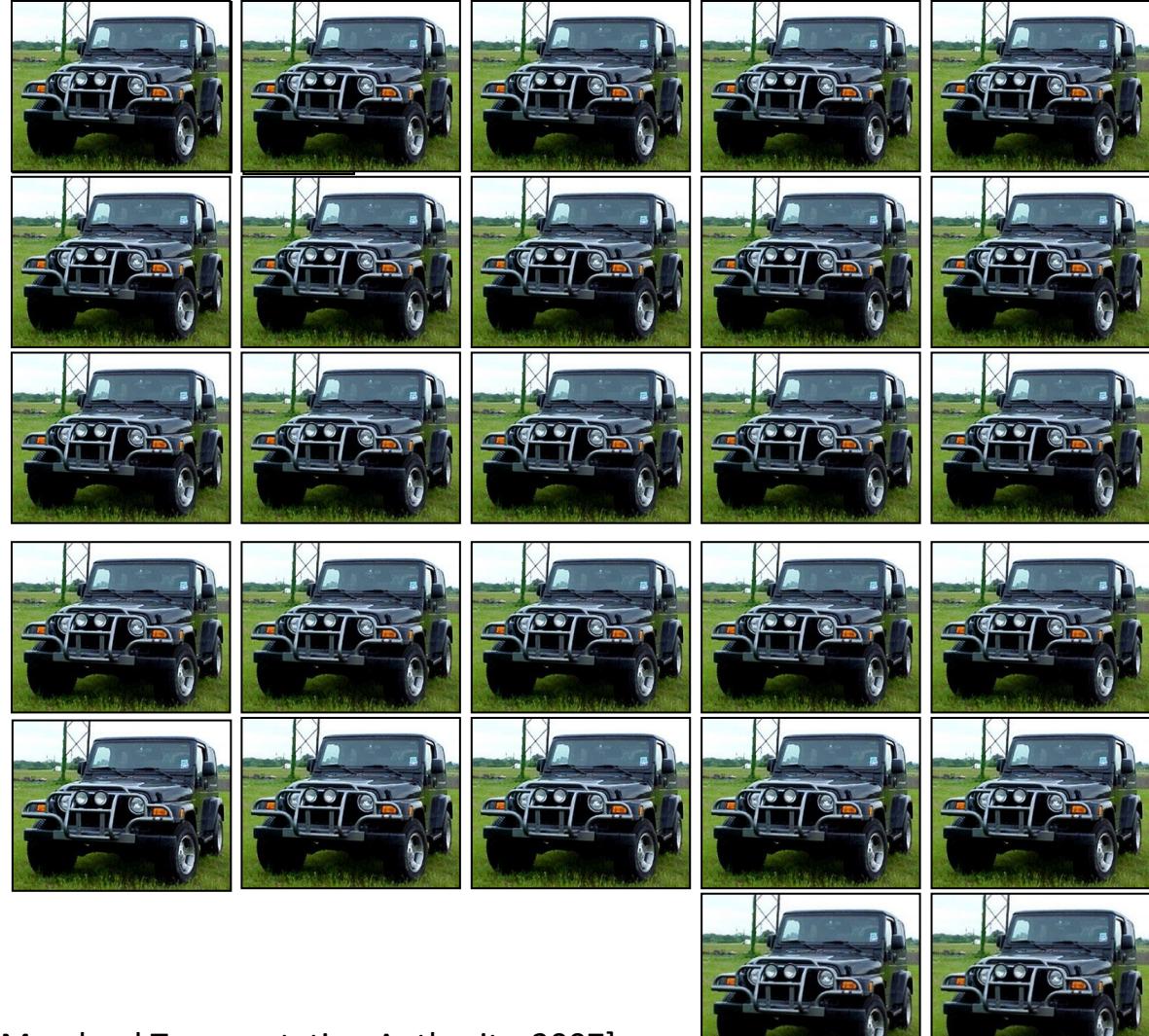


1961
1.5 million



Since its construction in 1952, traffic across the bridge has grown exponentially

1952
1.1 million
|
1961
1.5 million
|
2007
27 Million
↓



A New Template for Assertion-Evidence Format

Breaking out of the PowerPoint Layout



University of Pittsburgh

The default PowerPoint layout is not designed for assertion-evidence format

Click to edit Master title style

- Click to edit Master text styles
 - Second level
 - Third level
 - Fourth level
 - » Fifth level

9/7/2010 Footer (#)

Encourages topics as titles

Encourages long text, not visuals

Title of Presentation in Initial Capitals: 36 Points, Calibri Bold

Name
Name
Name

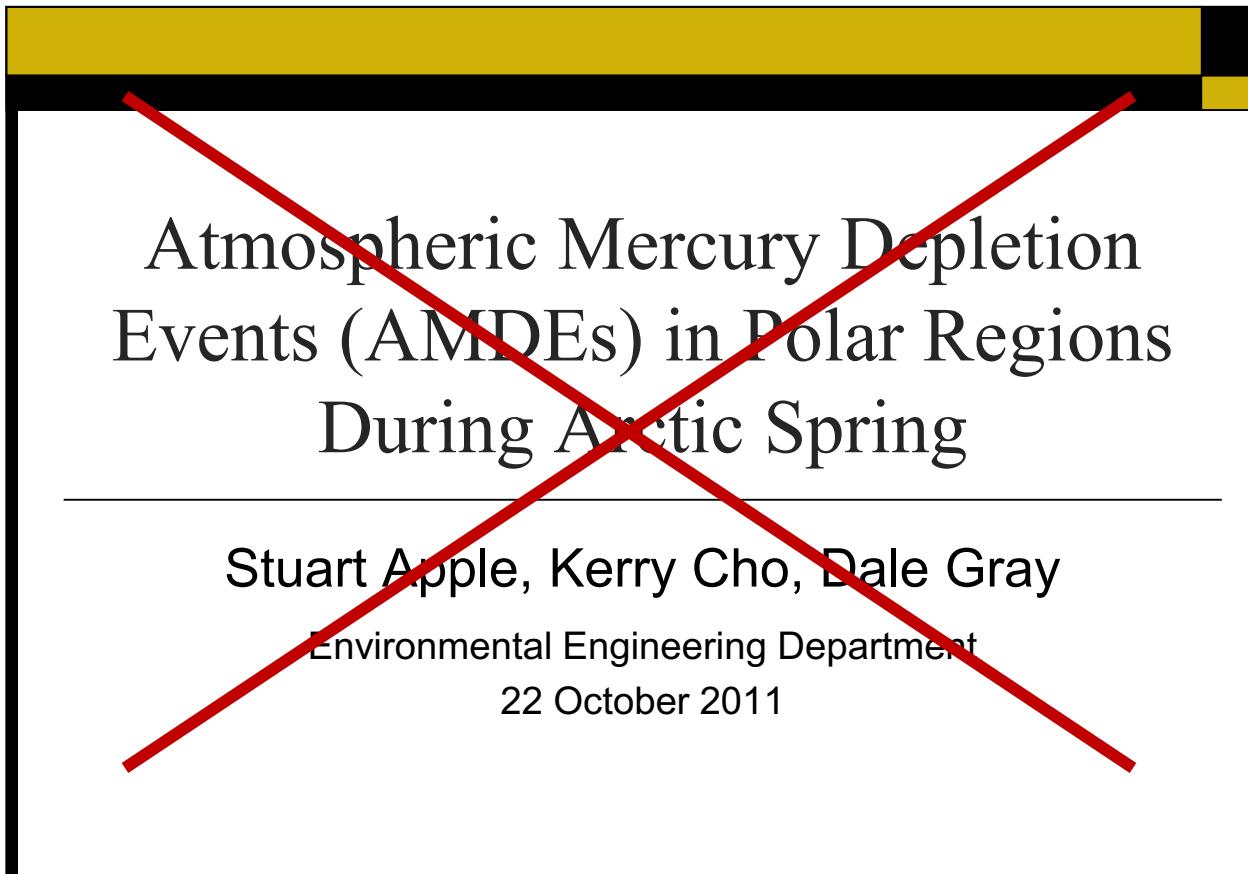
Department
Institution

Date

Replace this box with key image to introduce talk's scope, importance, or background

Replace with
your Logo

**A common error in the beginning of scientific talks
is to leave the audience behind**



Determining Whether Atmospheric Mercury Goes into Surface Snow after a Depletion Event

Katrine Aspmo

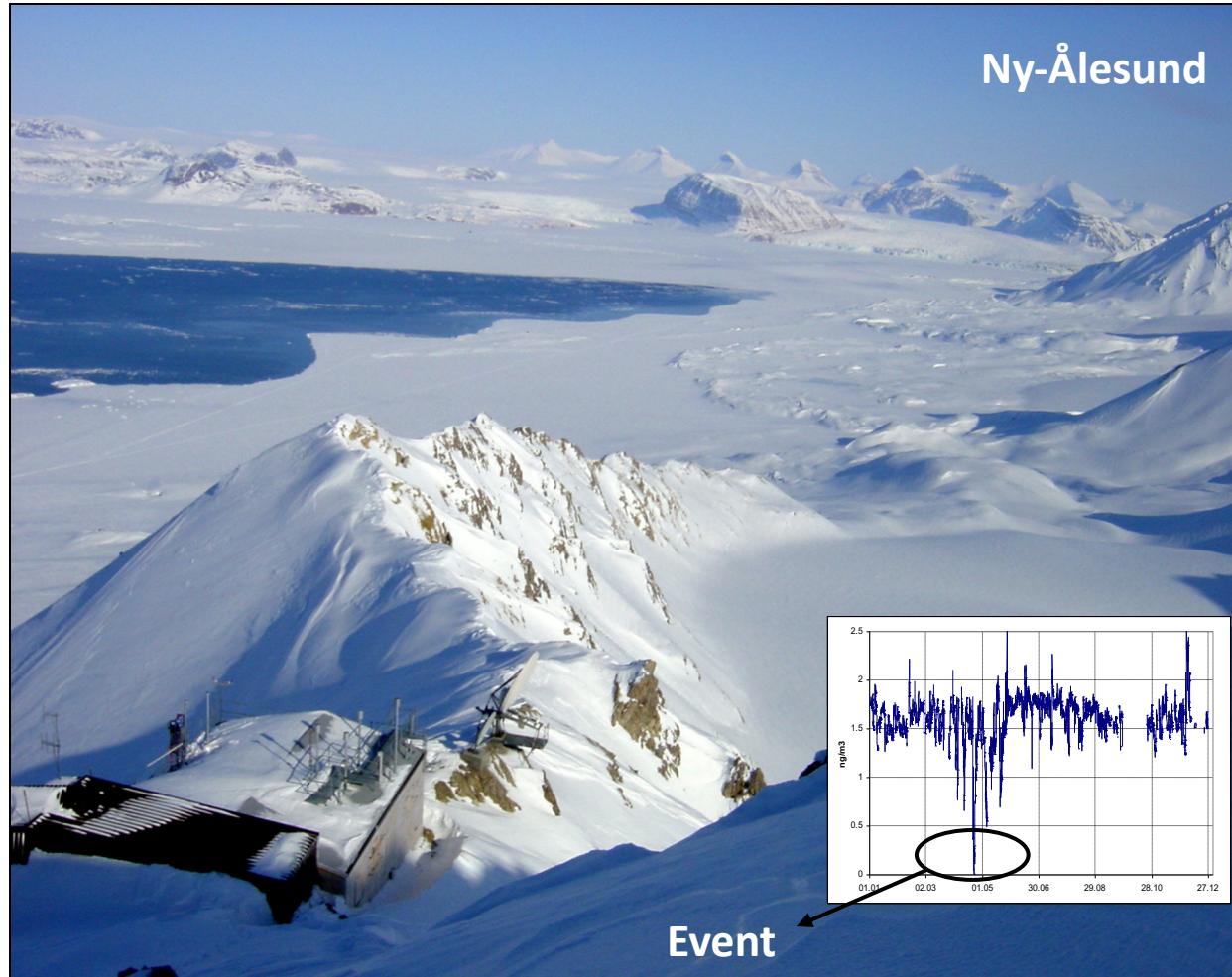
Torunn Berg

Norwegian Institute for
Air Research

Grethe Wibetoe

University of Oslo,
Dept. of Chemistry

June 16, 2004



[Alley, 2013]



**This presentation focuses on... (complete sentence,
but go no more than two lines)**

**Image for
Topic 1**

Topic 1

**Image for
Topic 2**

Topic 2

**Image for
Topic 3**

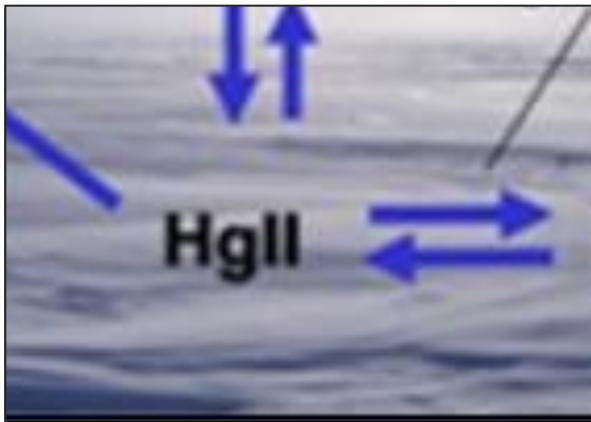
Topic 3

A common error in the mapping of scientific talks is to show a list that is not memorable

Outline

- Introduction
- Background
- Theory for Hg Cycling
- Measurements from Station
 - Atmospheric Hg
 - Surface Snow Hg
- Environmental Implications
- Conclusions
- Acknwoledgments
- Questions

This talk traces what happens to mercury after it depletes from the atmosphere in arctic regions



Theory for mercury cycling



Measurements from Station



Environmental implications

This sentence headline makes an assertion on a topic in no more than two lines (this is your main slide template)

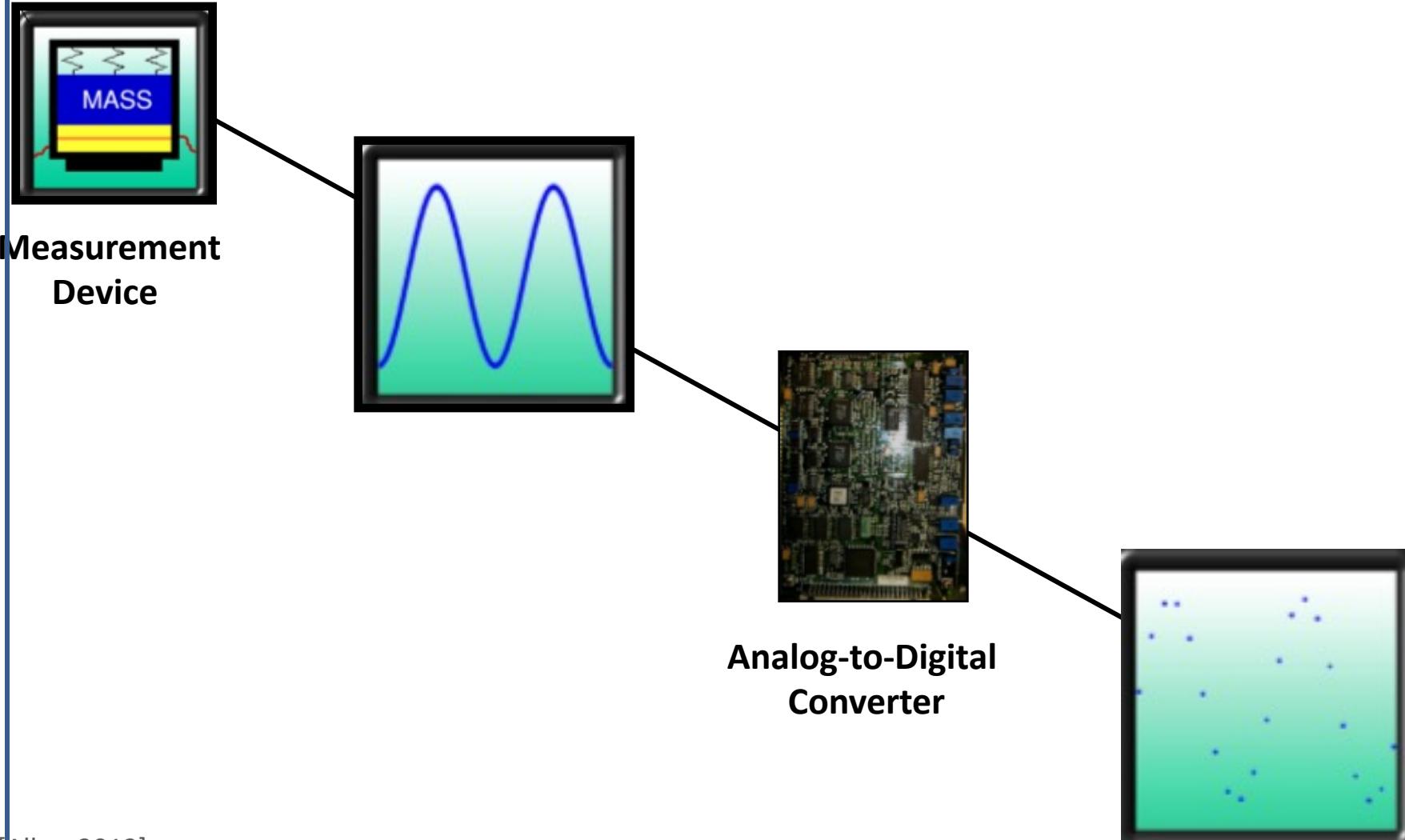
Image(s)
supporting
above assertion

If necessary, identify key assumption or background for audience—keep to two lines (18–24 point type)

Digital Acquisition System Sampling

- Vibration measured by accelerometer
 - Analog voltage produced
 - Sinusoidal shape
- Analog signal converted to digital signal
- Signal sampled at a specific rate
- Rate → high enough to retain analog shape

A digital acquisition system has to sample at a rate fast enough to retain the shape of the analog signal



Fragments quickly outpace the blast wave and become the primary hazard to personnel



Tsunamis cause devastating destruction, especially to sparsely vegetated areas



2004 Indian Ocean Tsunami: Gleebruk Village, Sri Lanka

In summary, this sentence headline states the most important assertion of the presentation

Supporting point (no more than two lines)

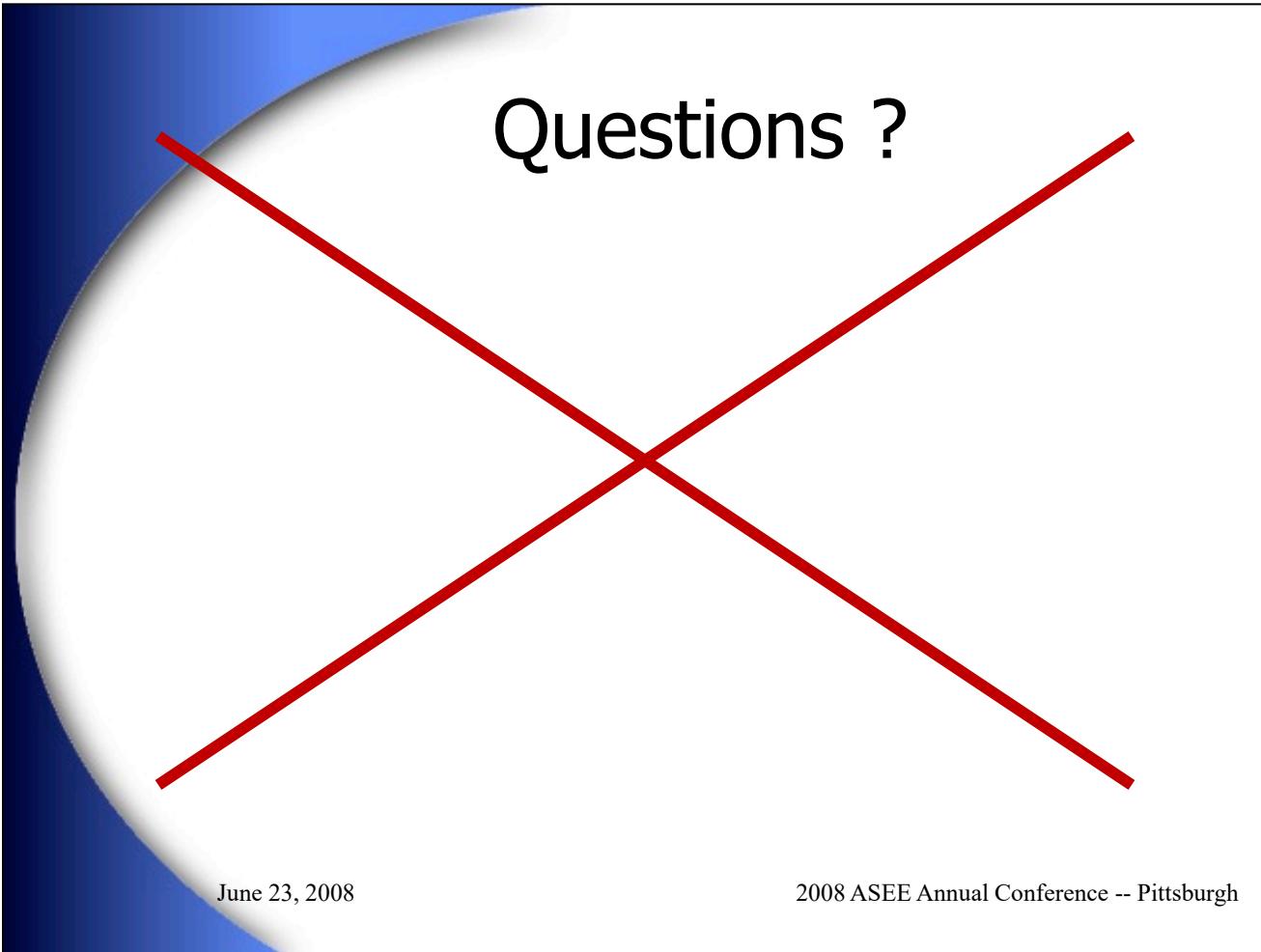
Another supporting point (parallel to the first)

Image that supports conclusion

Questions?

Logo

A common error in the endings of scientific talks is to waste the last slide



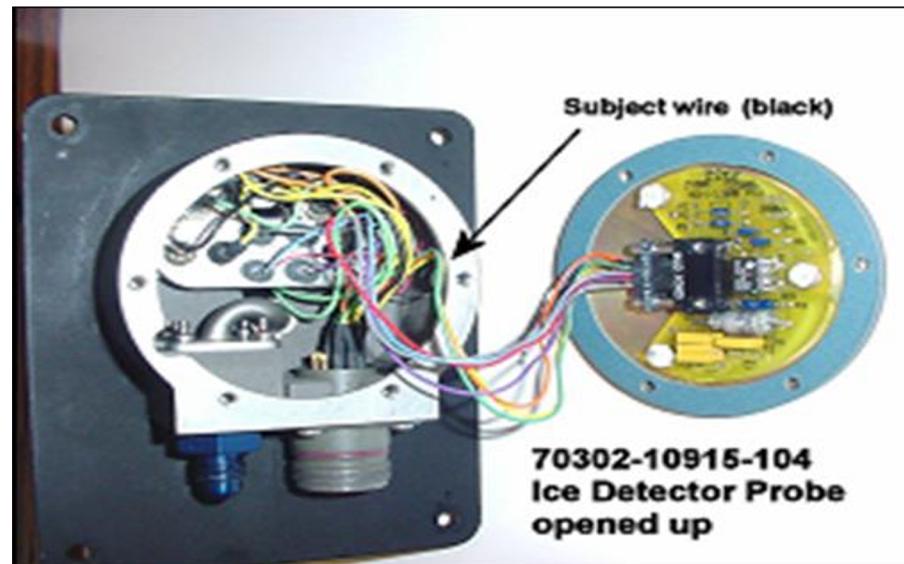
Questions ?

In summary, the detector failed because of a short-circuit created by the abrasion of wire insulation

Wires not harnessed to prevent contact with housing



Short circuit to ground created where wire contacted housing



Questions?

No need to be religious in using assertion-evidence; Rather, I want to open your minds to new possibilities

- Look here, I'm using a bullet point. It's not a sin. ☺
- Regardless of which format you choose, there are takeaways
- Takeaway 1: Organize around messages, not topics
- Takeaway 2: Title should express message for whole slide

Assertion-evidence templates and more resources can be found at: <https://www.assertion-evidence.com/>

Screenshot of a web browser showing the homepage of assertion-evidence.com. The page features a dark background with white text. At the top, it says "Rethinking Presentations in Science and Engineering" and "Michael Alley, Penn State". Below this, a main heading reads "Assertion-Evidence talks are comprehended better by audiences and project more confidence from speakers". A navigation bar below the heading includes links for Home, Templates, Model Talks, Why AE?, Spreading AE, and Handling Resistance. Two video thumbnails are displayed: one titled "PowerPoint's defaults are weak" showing a woman speaking over a slide with a cluttered bullet list, and another titled "The assertion-evidence approach is superior" showing a woman speaking over a slide with clear, evidence-based graphics.

assertion-evidence.com

Apps Gmail Google Maps YouTube BBC - Homepage Pittsburgh Weather... Weather Stockholm... https://production...

Rethinking Presentations in Science and Engineering Michael Alley, Penn State

Home Templates Model Talks Why AE? Spreading AE Handling Resistance

Assertion-Evidence talks are comprehended better by audiences and project more confidence from speakers

PowerPoint's defaults are weak

PowerPoint's default lead presenters to create slides that are ineffective for presentations in engineering and science. For one thing, the bullet-list default in the body leads users to write too much text. In addition, that default leads to cluttered slides because the bullet list crowds the graphics. Moreover, the space taken by the bullet lists reduces the size of graphics, leading to call-outs that are too small to read. The assertion-evidence approach helps you overcome the

The assertion-evidence approach is superior

The What. The assertion-evidence approach calls on you to build your talks on messages, not topics. In this approach, you support those messages with visual evidence, not bulleted lists. Moreover, to explain that evidence, you fashion sentences on the spot. Although requiring more effort, this assertion-evidence approach leads to higher understanding by the audience, as evidenced by our tests of audience comprehension. In addition, our students claim

Set of slides from another anonymous student A

Good slides but anything can be improved!

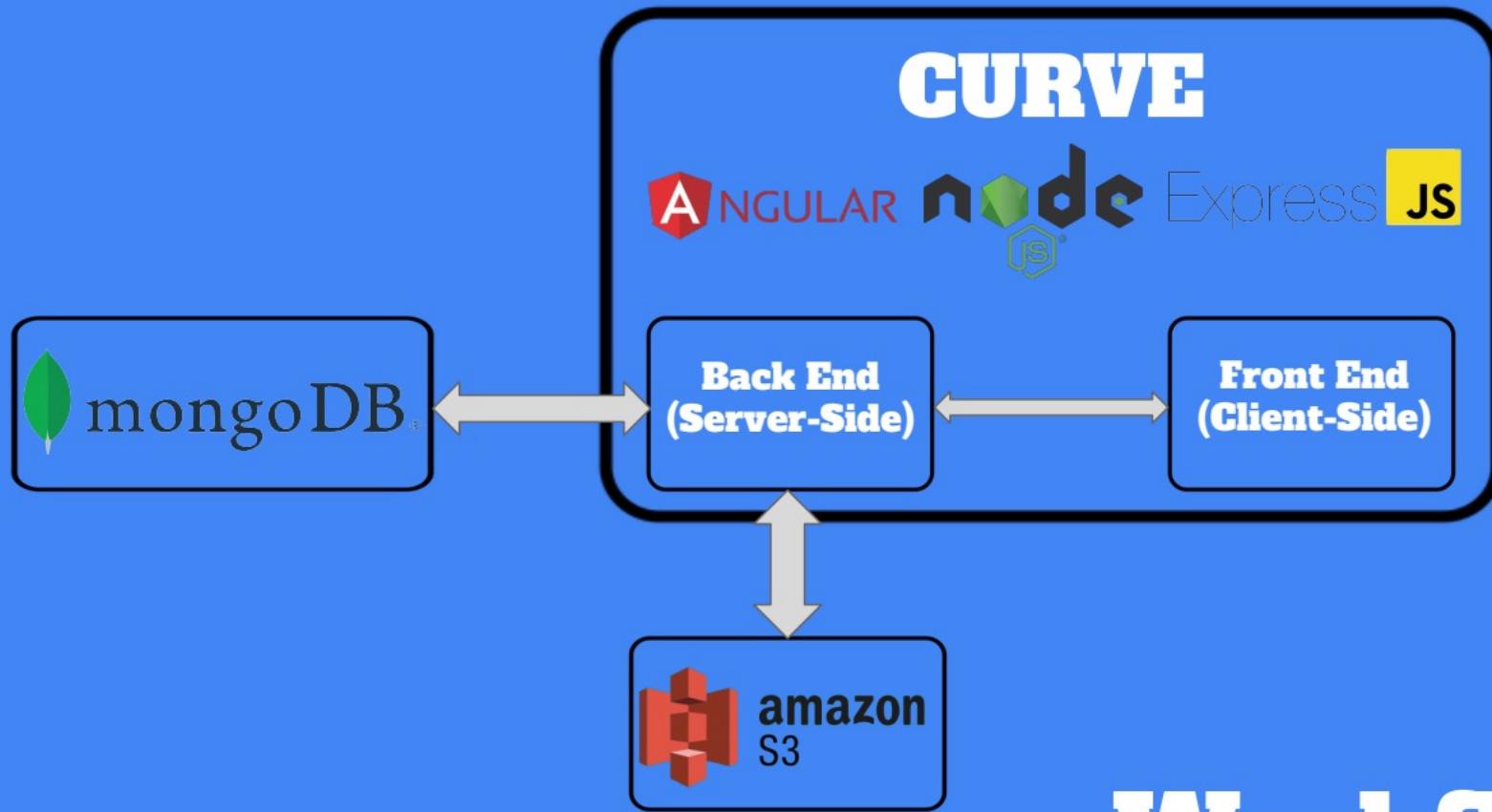


Student shows a set of tools without giving any context

The Tools



Much better, but then why was the previous slide needed?
Title could convey more message than “Workflow”.



Workflow

Good slide with a strong message but could be improved, using assertion-evidence format

Customer-managed or AWS-managed?

- Greater control of security, more robust in terms of options
 - Robust for access restriction the long-term, but less reliable in the short-term
 - More code to maintain
- Management of keys is abstracted, less work on a short timetable
 - Fewer options for restricting access, but much more secure and reliable
 - Simpler code for future employees

Solution: separate the ideas of access restriction and encryption

Rather than bullet points, a table showing side-by-side comparisons for each of the categories is more impactful

Customer-managed or AWS-managed?

	Customer-managed	AWS-managed
More options for access restriction?	✓	✗
More secure and reliable encryption?	✗	✓
Less code to maintain?	✗	✓

Solution: separate the ideas of access restriction and encryption

Set of slides from another anonymous student B

Also good slides but can be improved!



Good slide motivating talk but could be improved, using assertion-evidence format

Why Migrate?

- Migrating would save us money for numerous reasons
- It eliminates our need to control our servers
- No need to patch, update, and allocate new server space
- Those tasks are handled more efficiently by the AWS team
- Also less engineering effort in managing our redis as AWS provides its own redis implementations (Redis for AWS)

Change title from topic to message

~~Why Migrate?~~

Migrating to AWS would save us money

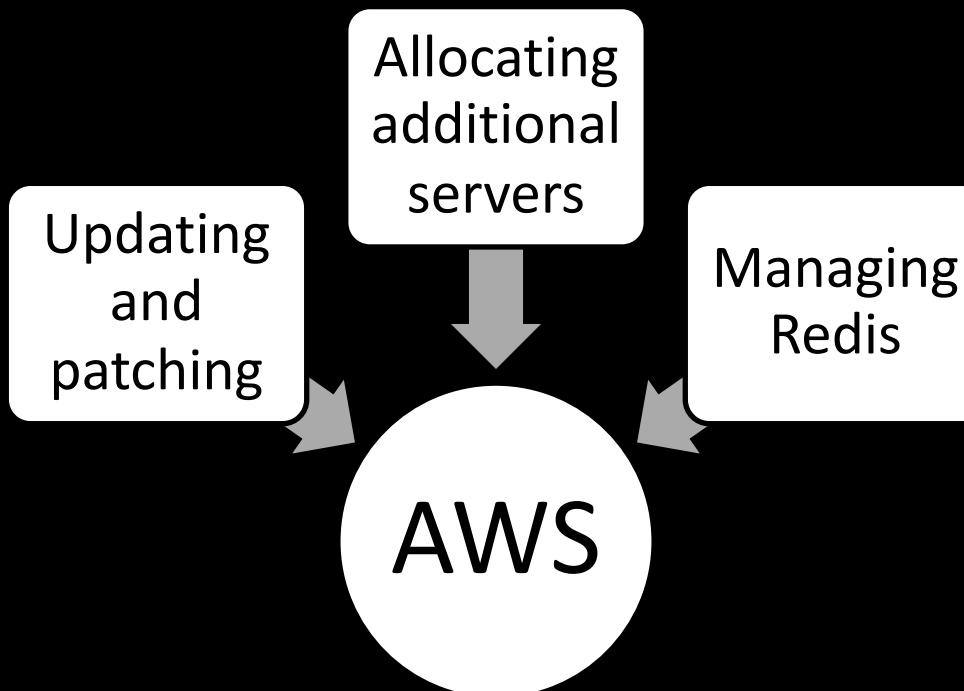
- ~~Migrating would save us money for numerous reasons~~
- It eliminates our need to control our servers
- No need to patch, update, and allocate new server space
- Those tasks are handled more efficiently by the AWS team
- Also less engineering effort in managing our redis as AWS provides its own redis implementations (Redis for AWS)

Change bullet points to concept diagram

~~Why Migrate?~~

Migrating to AWS would save us money

- ~~Migrating would save us money for numerous reasons~~



Good slide explaining background but could be improved, again using assertion-evidence format

What is Redis?

- Redis is an open source caching infrastructure
- A redis cluster creates a set of primary nodes and replicas
- The data on the primary nodes is split over however many replicas you choose
- If a primary node fails a replica is chosen to replace it and a new replica is created



Change title from topic to message

~~What is Redis?~~

Redis is an open source caching infrastructure

- ~~Redis is an open source caching infrastructure~~
- A redis cluster creates a set of primary nodes and replicas
- The data on the primary nodes is split over however many replicas you choose
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Change bullet points to (animated) diagram

What is Redis?

Redis is an open source caching infrastructure

- Redis is an open source caching infrastructure
- A redis cluster creates a set of primary nodes and replicas
- The data on the primary nodes is split over however many replicas you choose
- If a primary node fails a replica is chosen to replace it and a new replica is created

Create animated
diagram illustrating this



redis

Good motivation slides comparing original and proposed

Original Infrastructure

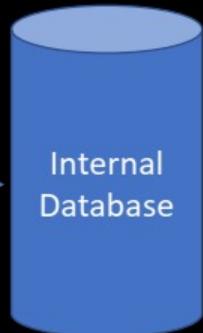
Native AWS



If cache hit read from here

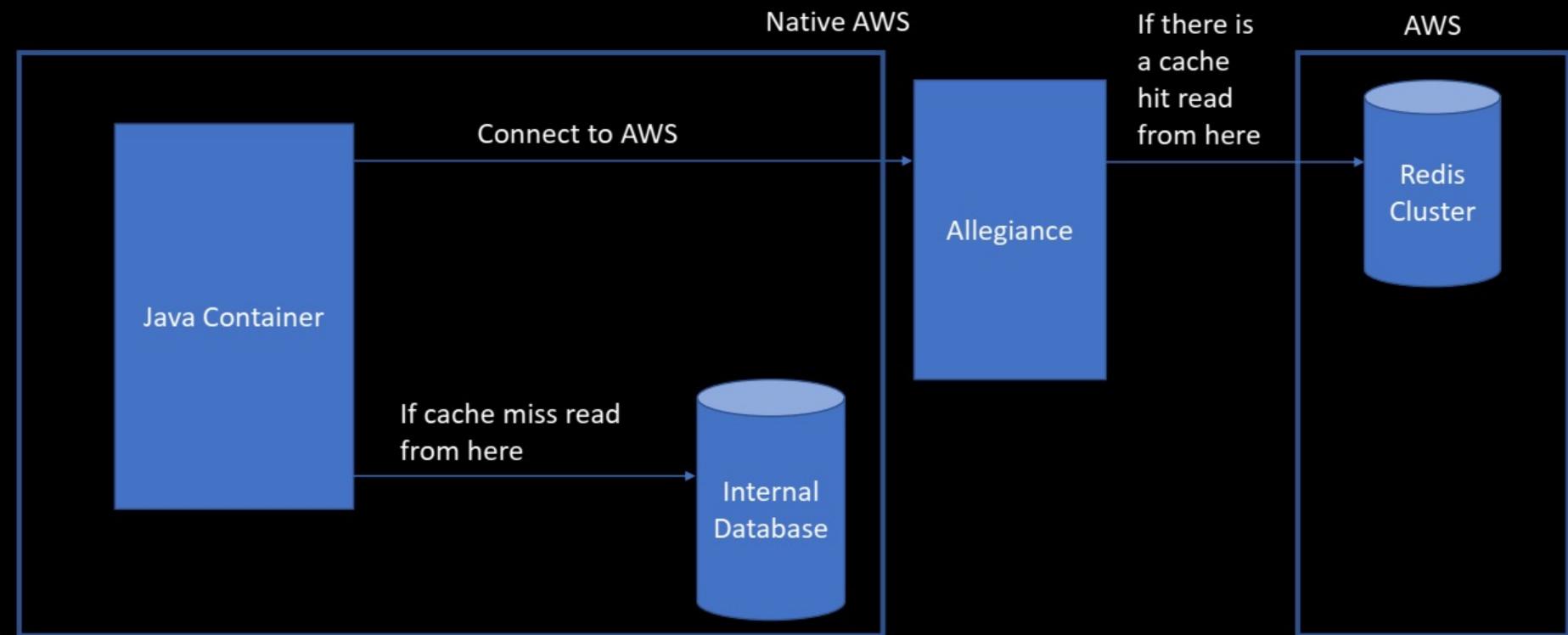


If cache miss read from here



Good motivation slides comparing original and proposed

Proposed Infrastructure

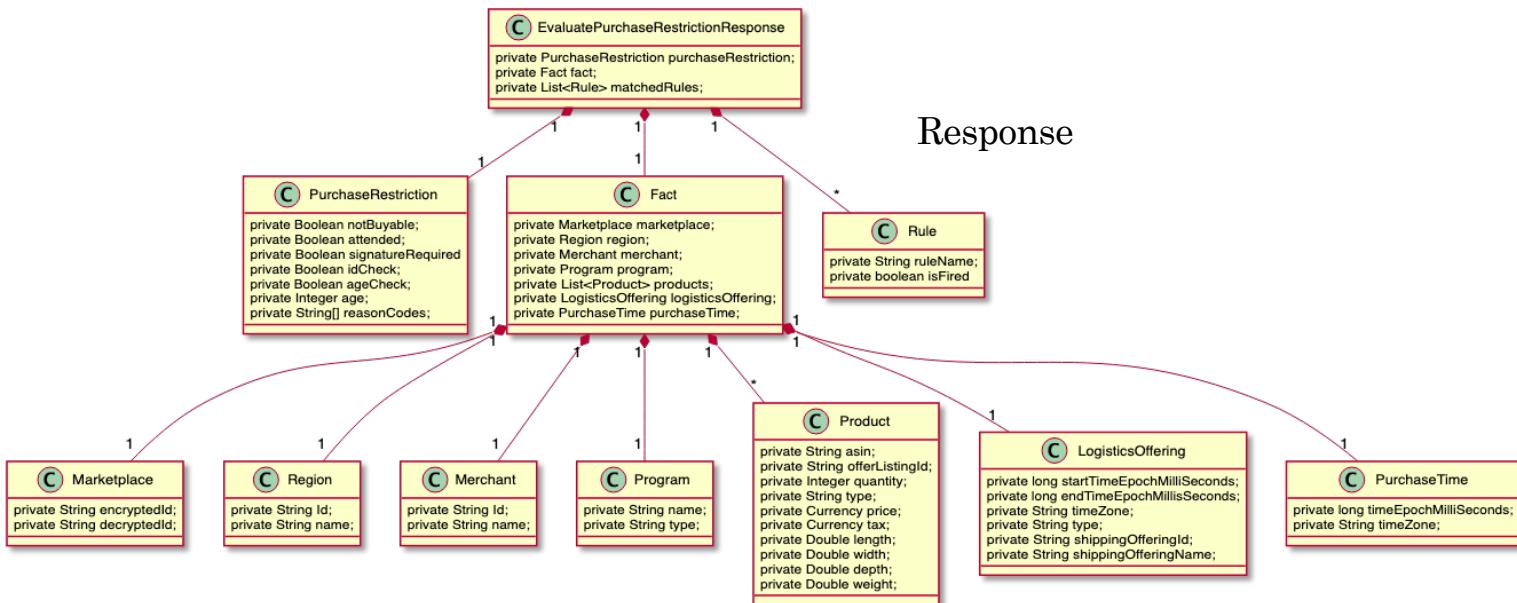


Types of slides you want to avoid

From anonymous previous Capstone students



API With Purchase Document



Projects



Food and Beverage / Retail Software

Software: Android Studio

Server: MySQL

Worked on UI and worked to add functionality and new features

Fix bugs



Lib Project

Work on developing library that would send information to various hardware devices

Work with code on both sides to tweak it so it follows the specs

Actually released lib to other software houses for internal testing

Technologies

