

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



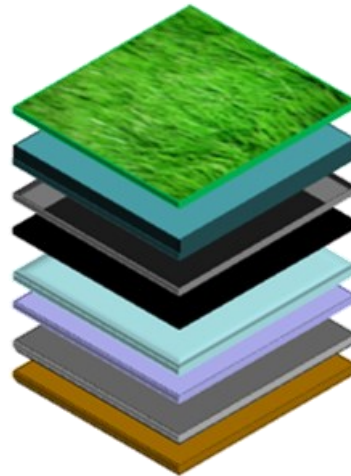
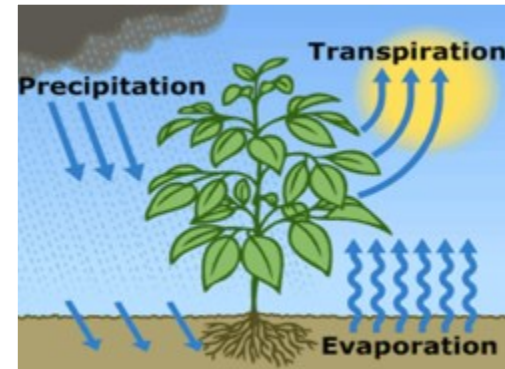
[Alley, 2013]

[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

sentence headline

Halogen Headlight



Xenon Headlight



[Alley, 2013]

[Sylvania, 2008]



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



visual
evidence

[Alley, 2013]

[Sylvania, 2008]



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

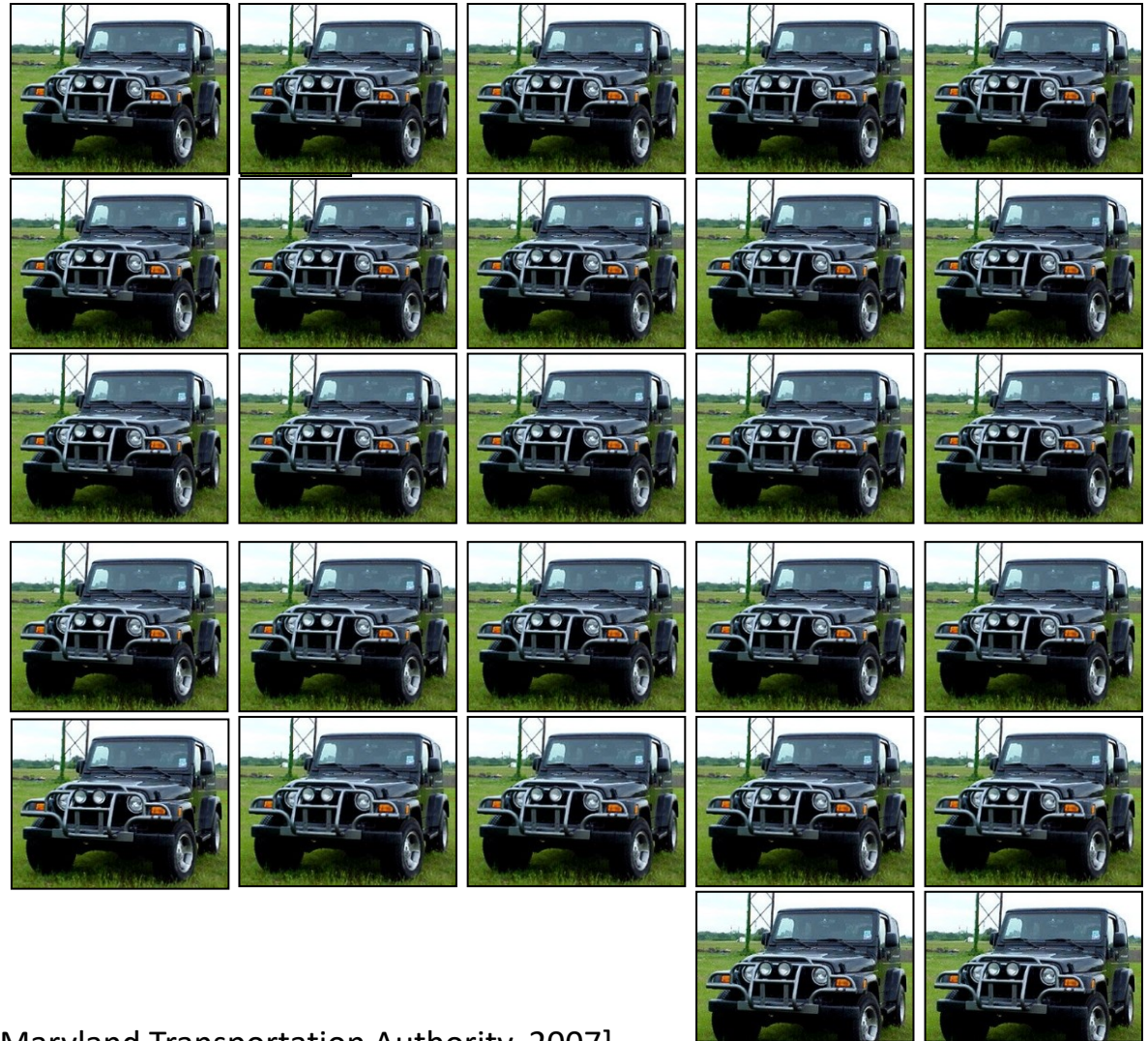
1952
1.1 million



1961
1.5 million



2007
27 Million

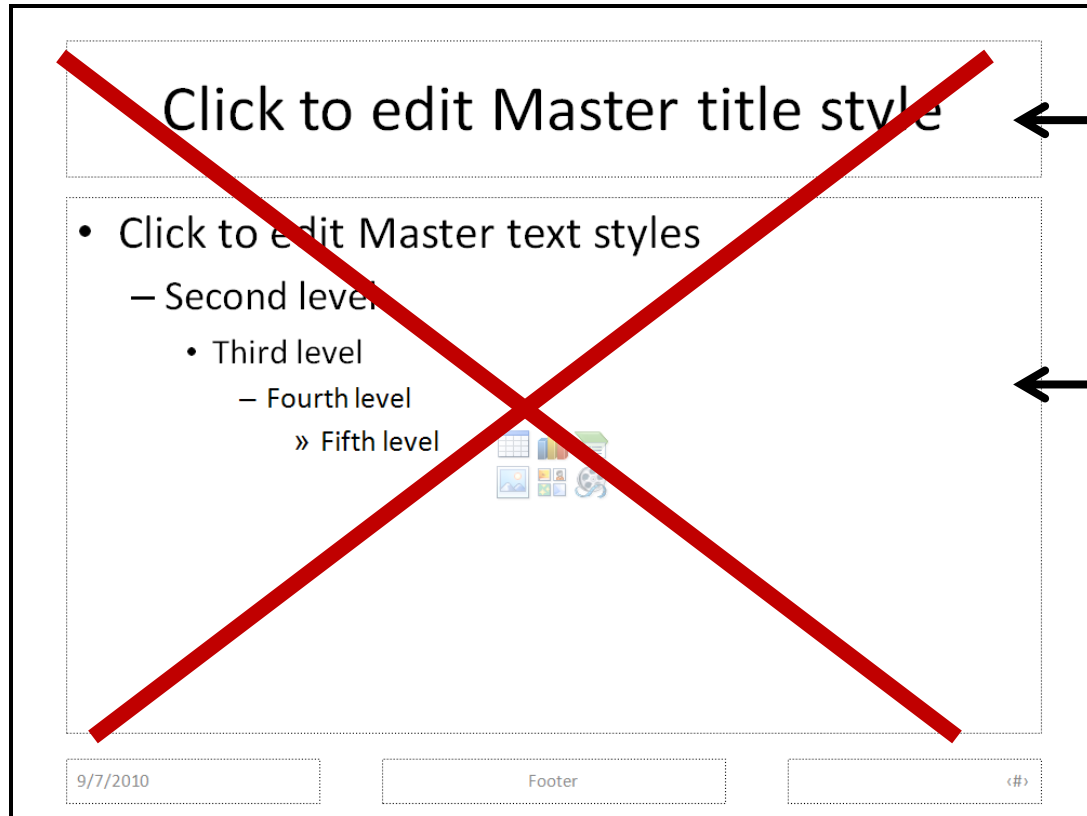


A New Template for Assertion-Evidence Format

Breaking out of the PowerPoint Layout



The third step in creating assertion-evidence slides is to breakout of the default PowerPoint layout



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 with
your Logo

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

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



Atmospheric Mercury Depletion Events (AMDEs) in Polar Regions During Arctic Spring

Stuart Apple, Kerry Cho, Dale Gray

Environmental Engineering Department

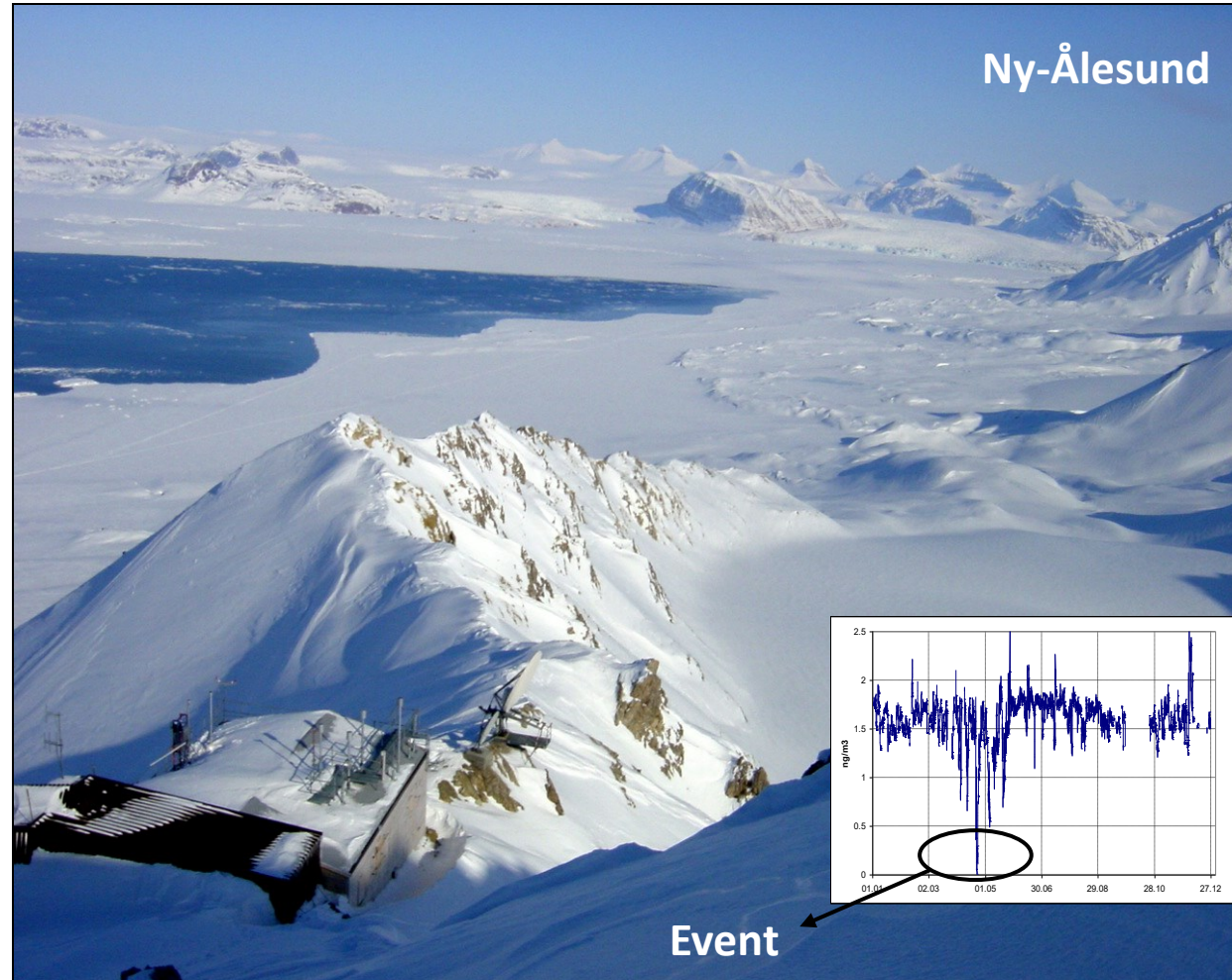
22 October 2011

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




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

A dark gray rectangular box containing the text "Image for Topic 1".


**Image for
Topic 1**

Topic 1

A dark gray rectangular box containing the text "Image for Topic 2".

**Image for
Topic 2**

Topic 2

A dark gray rectangular box containing the text "Image for Topic 3".

**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
- ▣ Acknowledgments
- ▣ Questions

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



Theory for mercury cycling

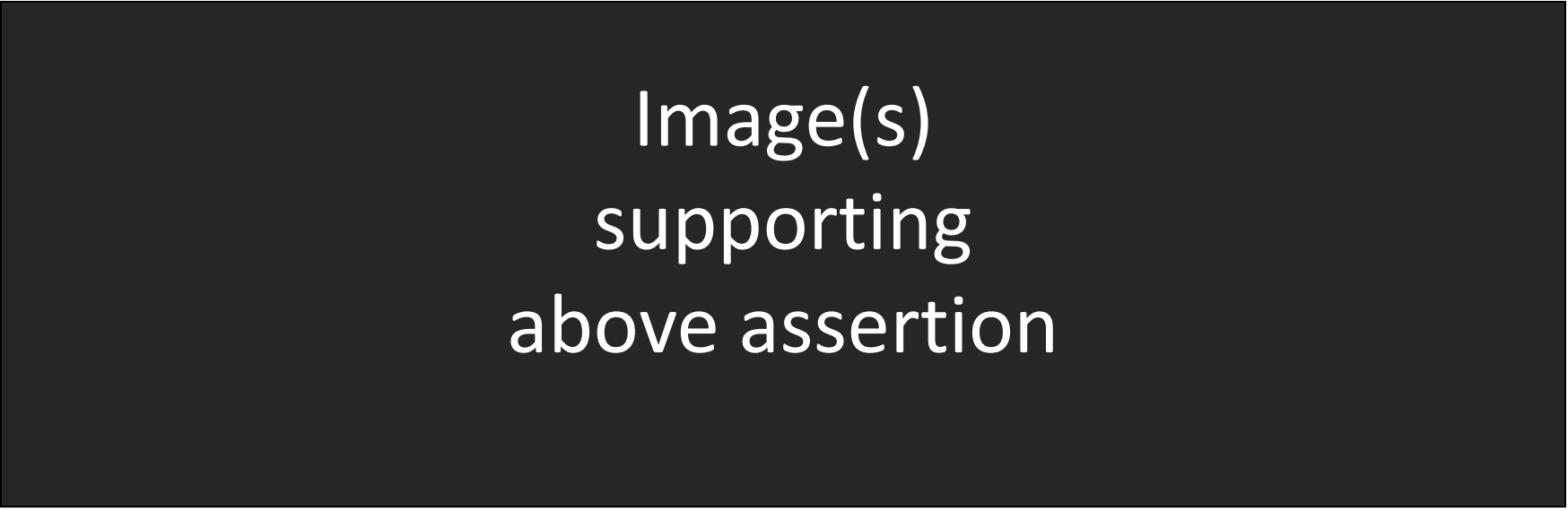


Measurements from Station



Environmental implications

This sentence headline makes an assertion on a topic in no more than two lines (you are going to have many of these)



Image(s)
supporting
above assertion

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

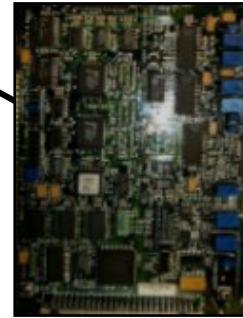
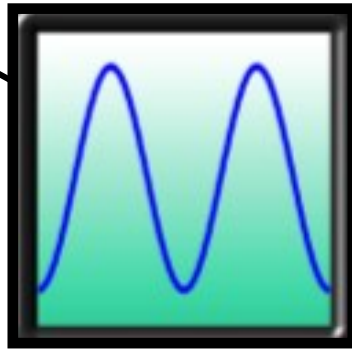
Digital Acquisition System Sampling

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

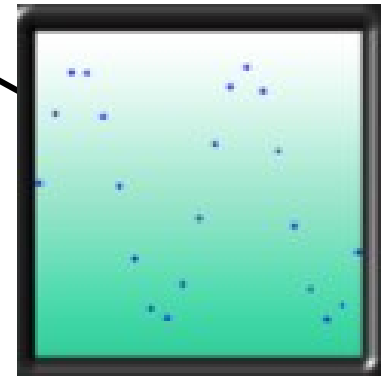
A digital acquisition system has to sample at a rate fast enough to retain the shape of the analog signal



**Measurement
Device**



**Analog-to-Digital
Converter**



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



Tsunamis cause devastating destruction, especially to sparsely vegetated areas

Before



After



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)

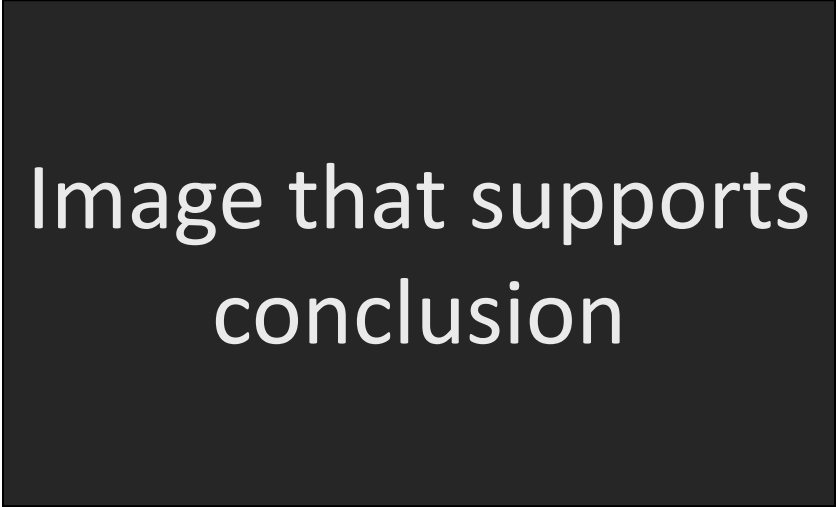


Image that supports conclusion

Questions?



Logo

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



Questions ?

June 23, 2008

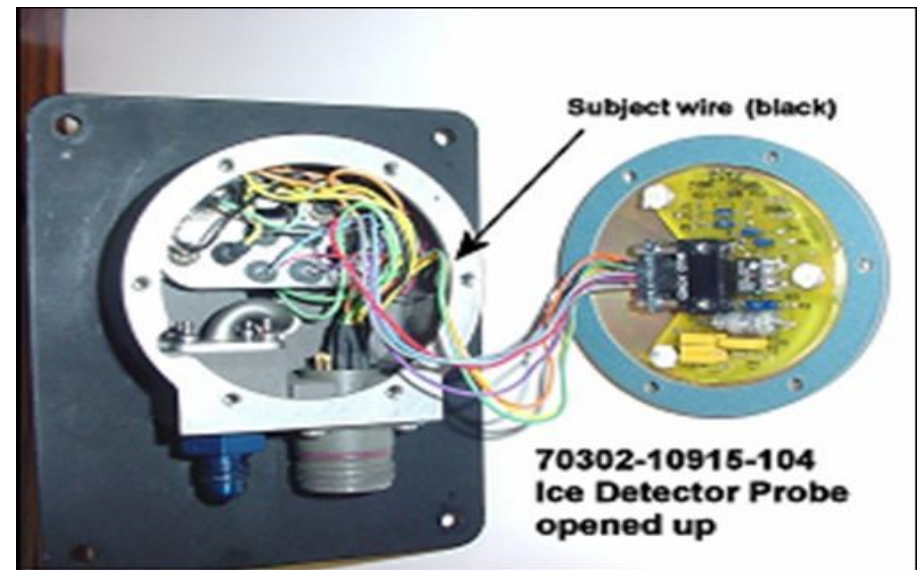
2008 ASEE Annual Conference -- Pittsburgh

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/>

← → ↻ assertion-evidence.com ☆ Update

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

Other bookmarks Reading list

Rethinking Presentations in Science and Engineering

Michael Alley, Penn State

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

Home

Templates

Model Talks

Why AE?

Spreading AE

Handling Resistance



05:01

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



01:37

The assertion-evidence approach is superior

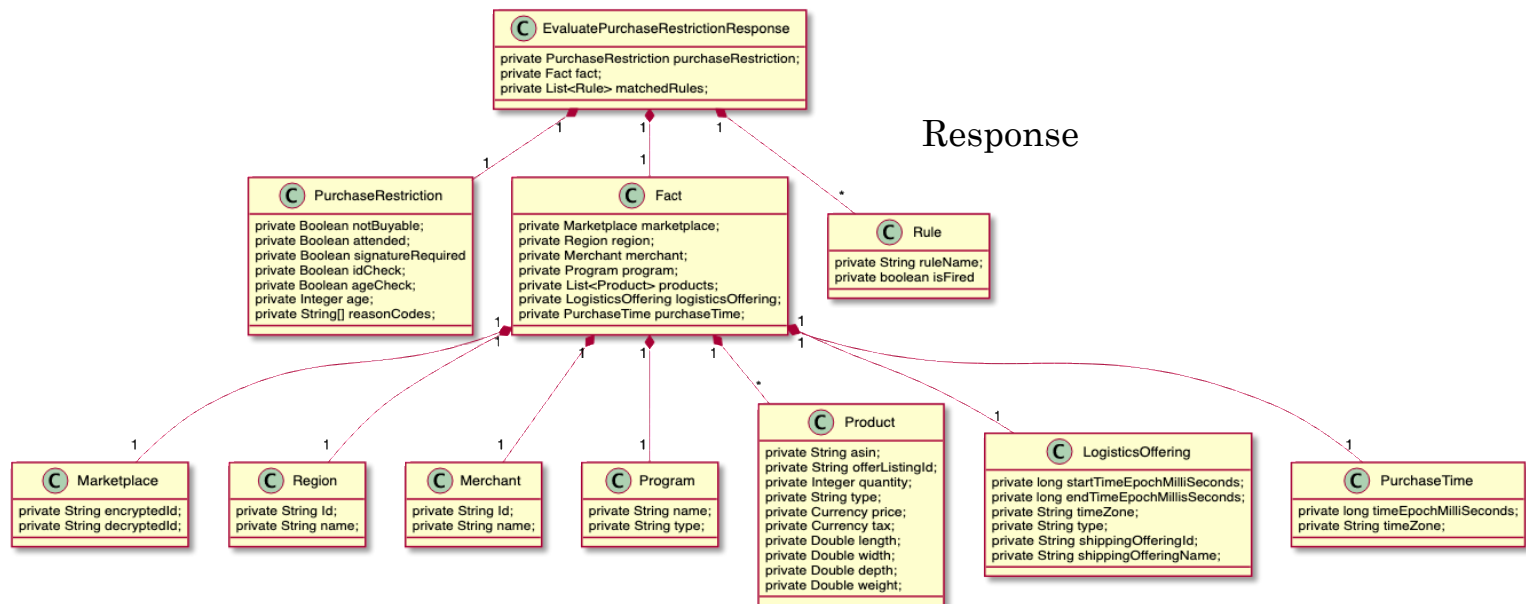
The What. The assertion-evidence approach calls on you to build your talks on messages, not topics. In this approach, you support those messages with visual evidence, not bulleted lists. Moreover, to explain that evidence, you fashion sentences on the spot. Although requiring more effort, this assertion-evidence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

Let's Critique some Real Slides

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



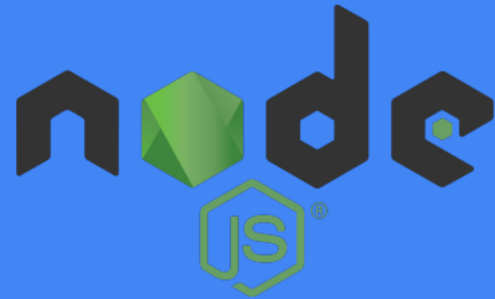
Set of slides from another anonymous student A

Good slides but anything can be improved!



Student shows a set of tools without giving any context

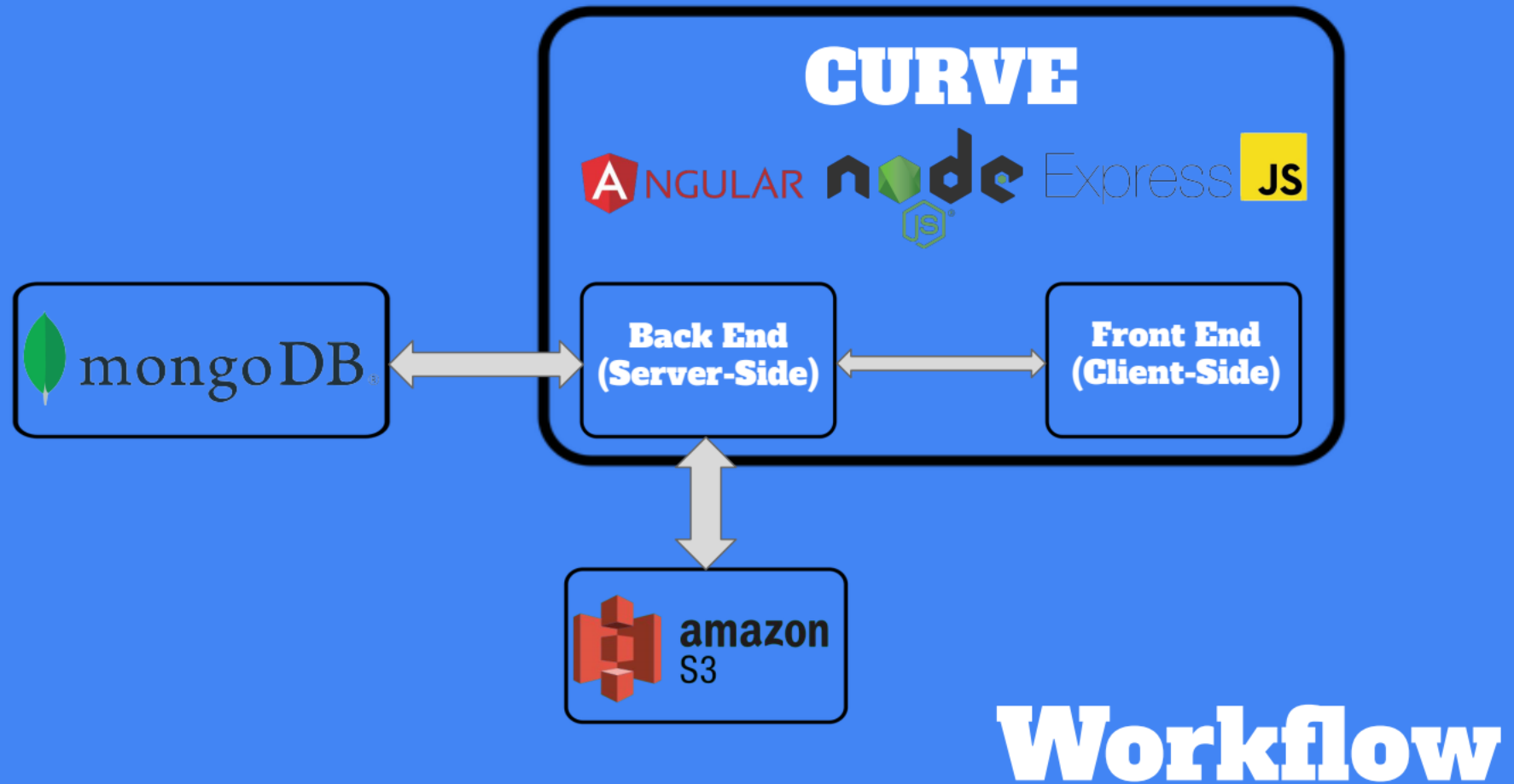
The Tools



Express



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



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

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

This is an improved version that I cooked up.

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!



Better title for this slide would be:

“Migrating to AWS would save us money” (assertion)

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)

Good slide explaining background but could be improved...

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



redis

... again using assertion-evidence format

~~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 diagram illustrating this

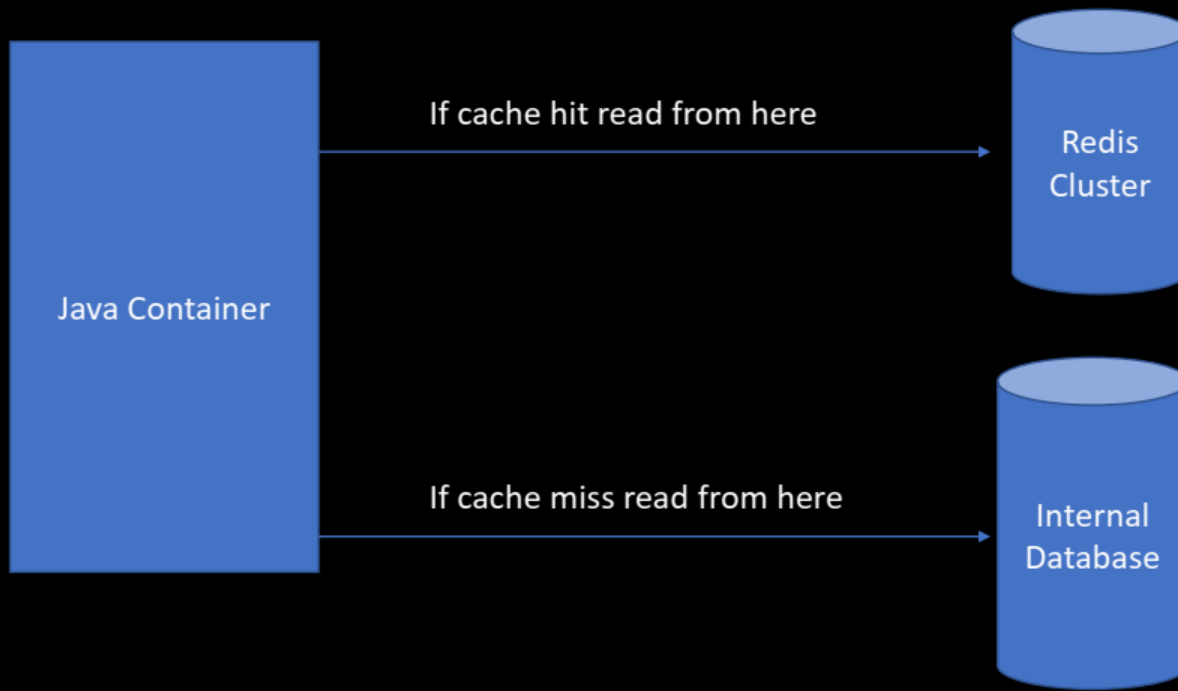


redis

Good motivation slides comparing original and proposed

Original Infrastructure

Native AWS



Good motivation slides comparing original and proposed

Proposed Infrastructure

