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
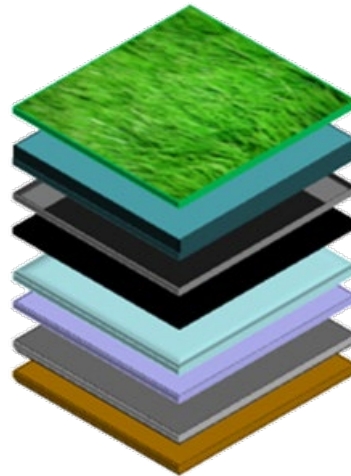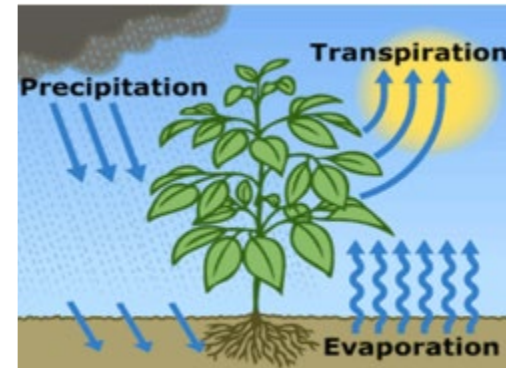
Halogen Headlight

Xenon Headlight

[Alley, 2013]

[Sylvania, 2008]

PENNSTATE

Build your talk on

messages

not
on topics

[Alley, 2013]

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 temper-atures 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]

PENN STATE

[Alley, 2013]

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]

PENNSTATE

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

1952
1.1 million vehicles

[Alley, 2013]

[Maryland Transportation Authority, 2007]

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

1952
1.1 million

|

1961
1.5 million

↓

[Alley, 2013]   [Maryland Transportation Authority, 2007]

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

1952
1.1 million

1961
1.5 million

2007
27 Million

[Alley, 2013]

[Maryland Transportation Authority, 2007]
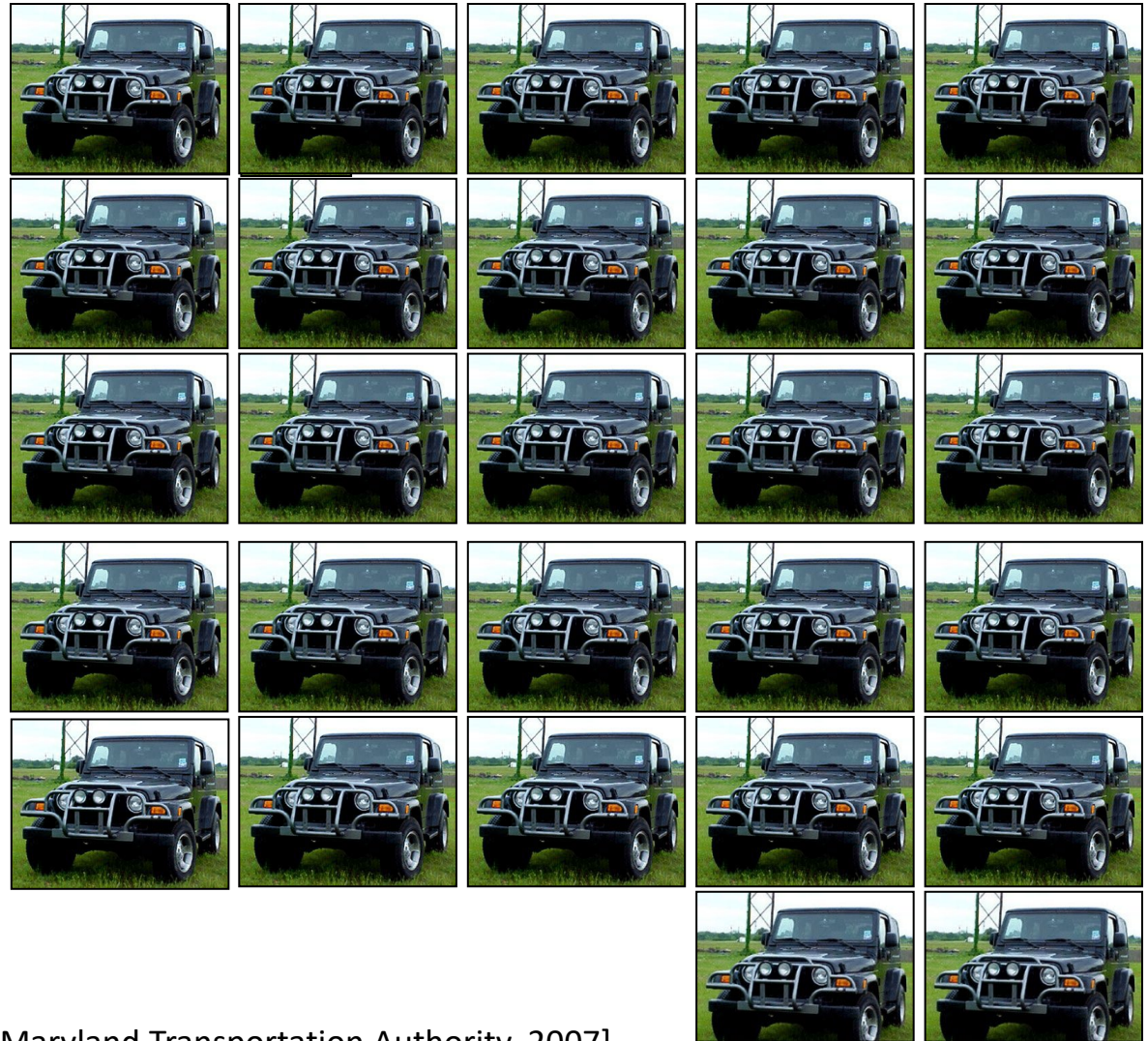
A New Template for Assertion-Evidence Format

Breaking out of the PowerPoint Layout

University of Pittsburgh

The default PowerPoint layout is not designed for assertion-evidence format
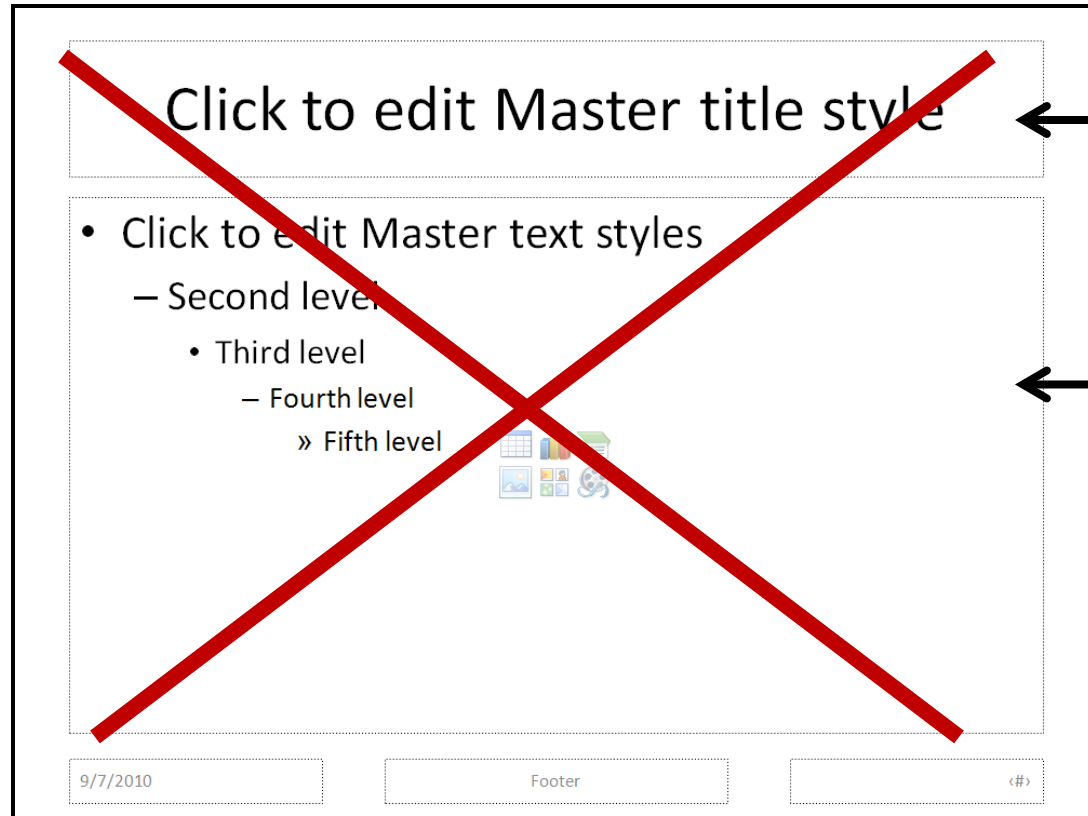
Encourages topics as titles

Encourages long text, not visuals

[Alley, 2013]

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

[Alley, 2013]

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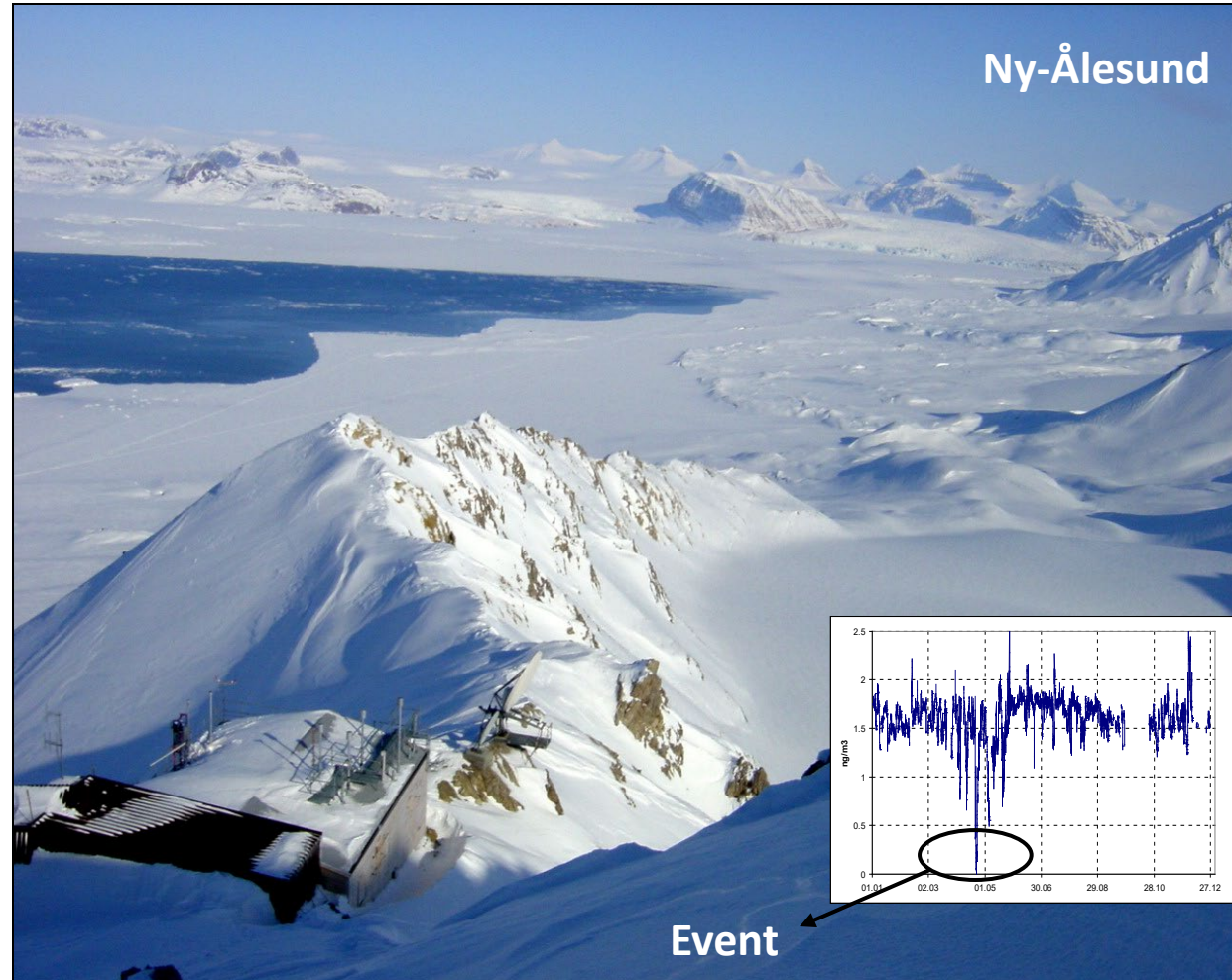
This presentation focuses on… (complete sentence, but go no more than two lines)

Image for Topic 1   Topic 1

Image for Topic 2   Topic 2

Image for Topic 3   Topic 3

[Alley, 2013]

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

[Alley, 2013]

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

[Alley, 2013]

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)

[Alley, 2013]

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
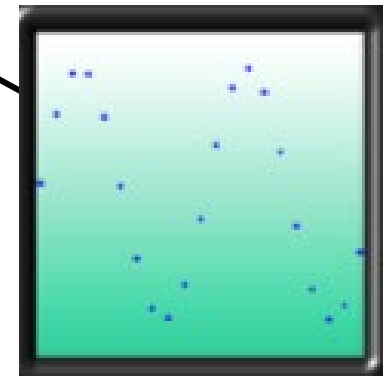- Rate → high enough to retain analog shape

[Alley, 2013]

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

Measurement Device
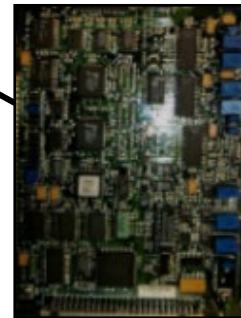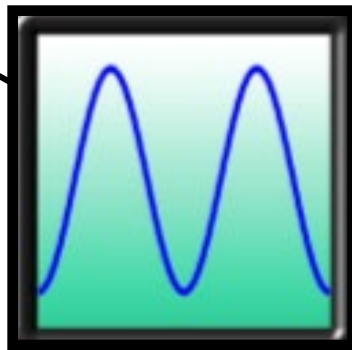
Analog-to-Digital Converter

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

Tsunamis cause devastating destruction, especially to sparsely vegetated areas

Before

Sparse

Sparse

Sparse

After

2004 Indian Ocean Tsunami: Gleebruk Village, Sri Lanka

[homepage.mac.com/demark/]

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

Supporting point (no more than two lines)
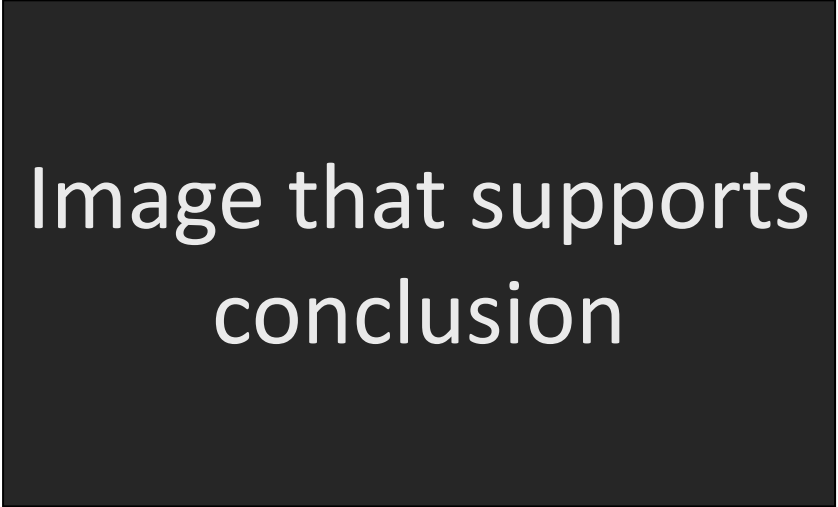
Another supporting point (parallel to the first)

Image that supports conclusion

Questions?

Logo

[Alley, 2013]

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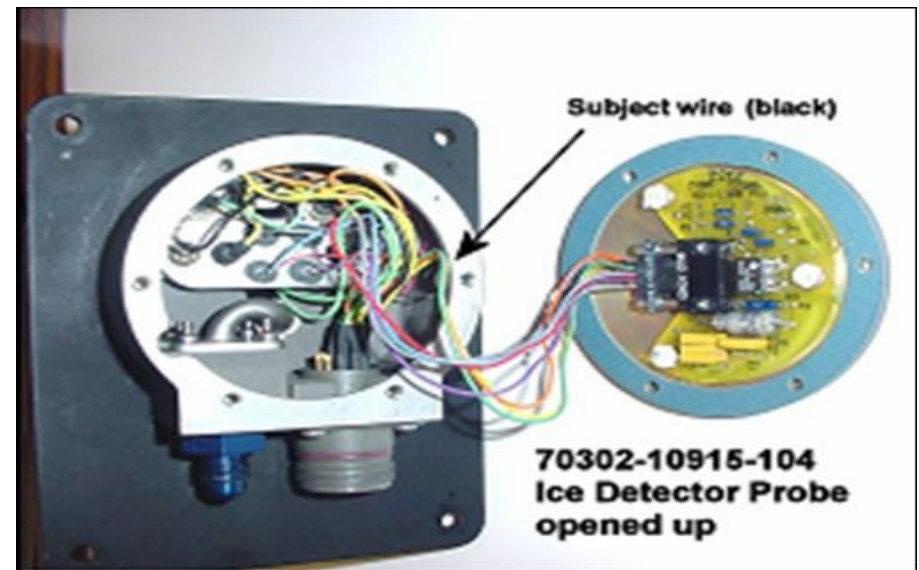

Questions ?

June 23, 2008   2008 ASEE Annual Conference -- Pittsburgh

[Alley, 2013]

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

Subject wire (black)

70302-10915-104
Ice Detector Probe
opened up

Questions?

Sikorsky
A United Technologies Company

[Alley, 2013]

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**

[Alley, 2013]

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

Set of slides from an anonymous student A

Good slides but anything can be improved!

University of Pittsburgh

The student showed a set of components, without giving any context on how they are used.

[Alley, 2013]

This is a better slide showing more context, but still unclear what the message is.

Web service is housed internally and data storage is housed in the cloud.
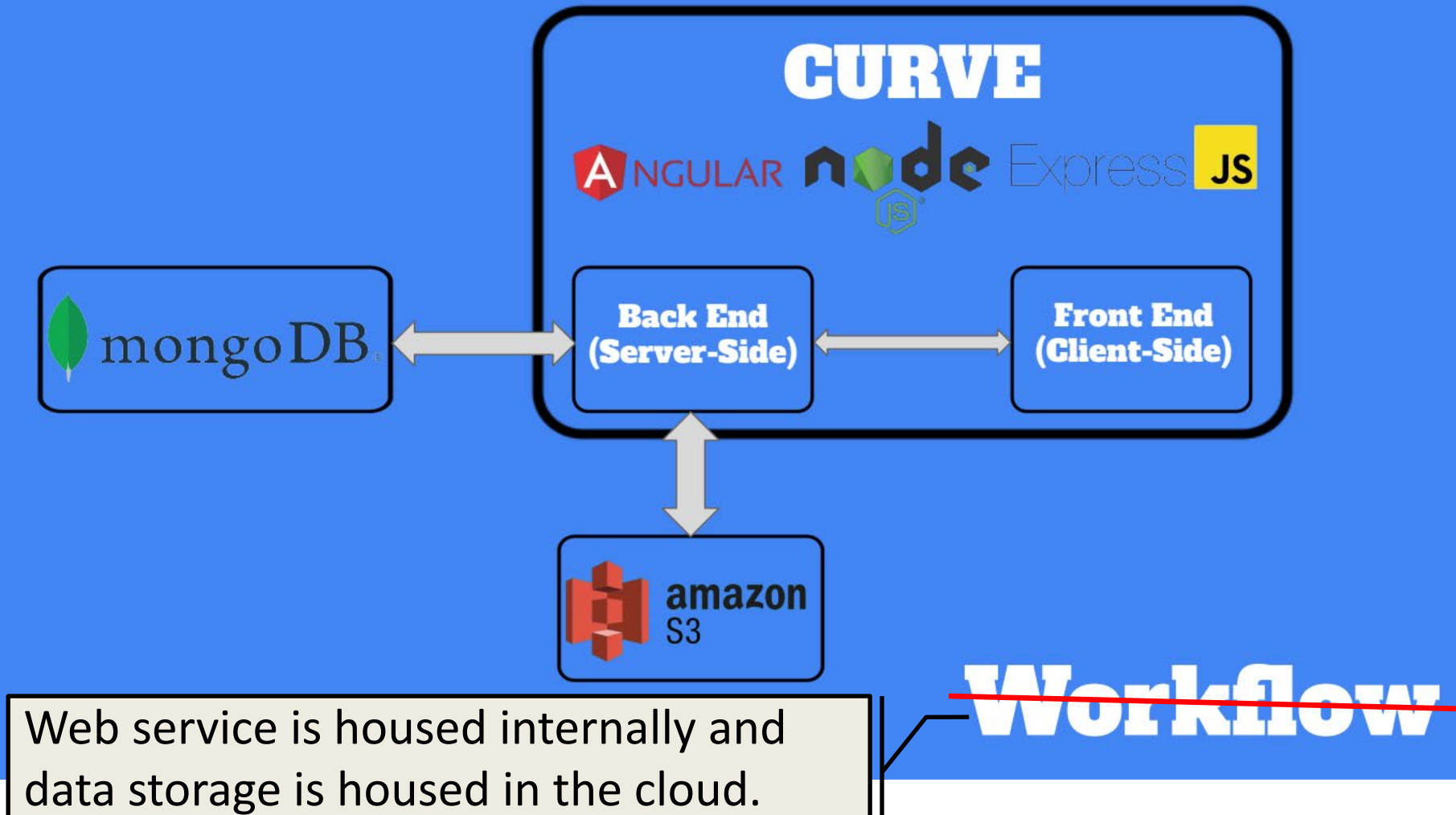
Good slide with a strong message but could be improved, using assertion-evidence format

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

[Alley, 2013]

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

Customer-managed and AWS-managed each has its own advantages

~~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

[Alley, 2013]

Set of slides from another anonymous student B

Also good slides but can be improved!

University of Pittsburgh

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)

[Alley, 2013]

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

Allocating additional servers

Updating and patching

Managing Redis

AWS

[Alley, 2013]
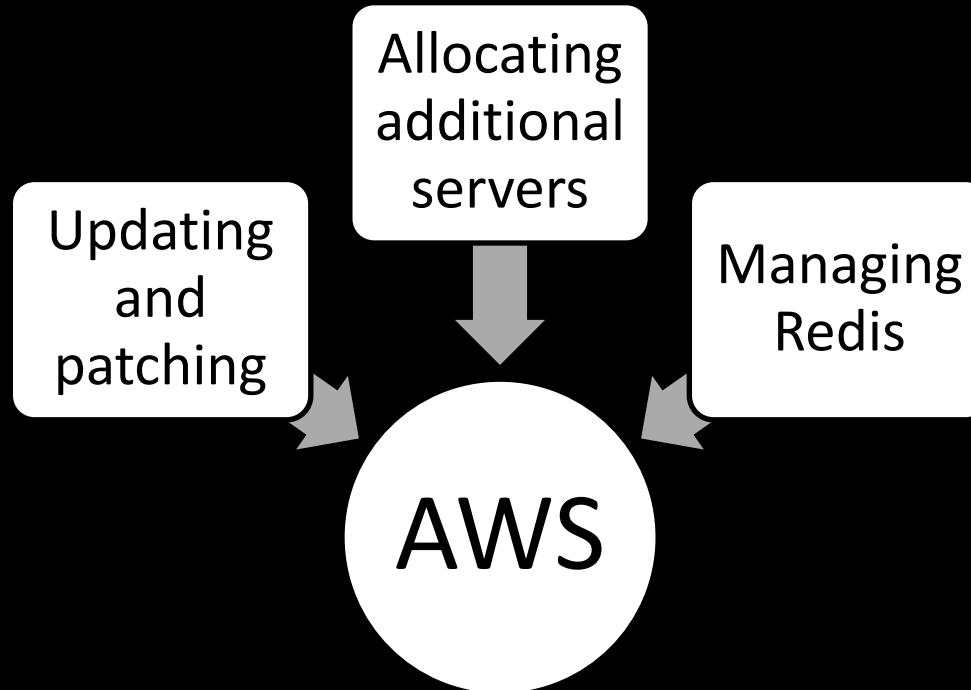
Good slide explaining background but could be improved, again using assertion-evidence format

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

[Alley, 2013]

Change title from topic to message

What is Redis?

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Change bullet points to (animated) diagram

What is Redis?

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Create animated diagram illustrating this

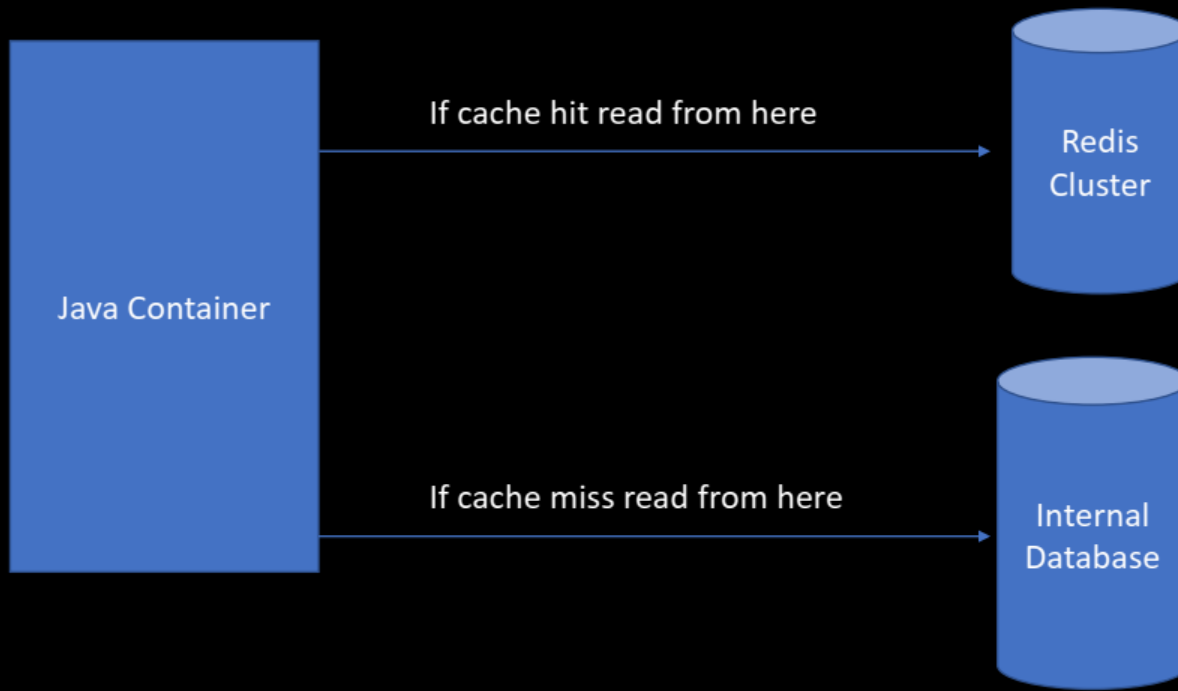[Alley, 2013]

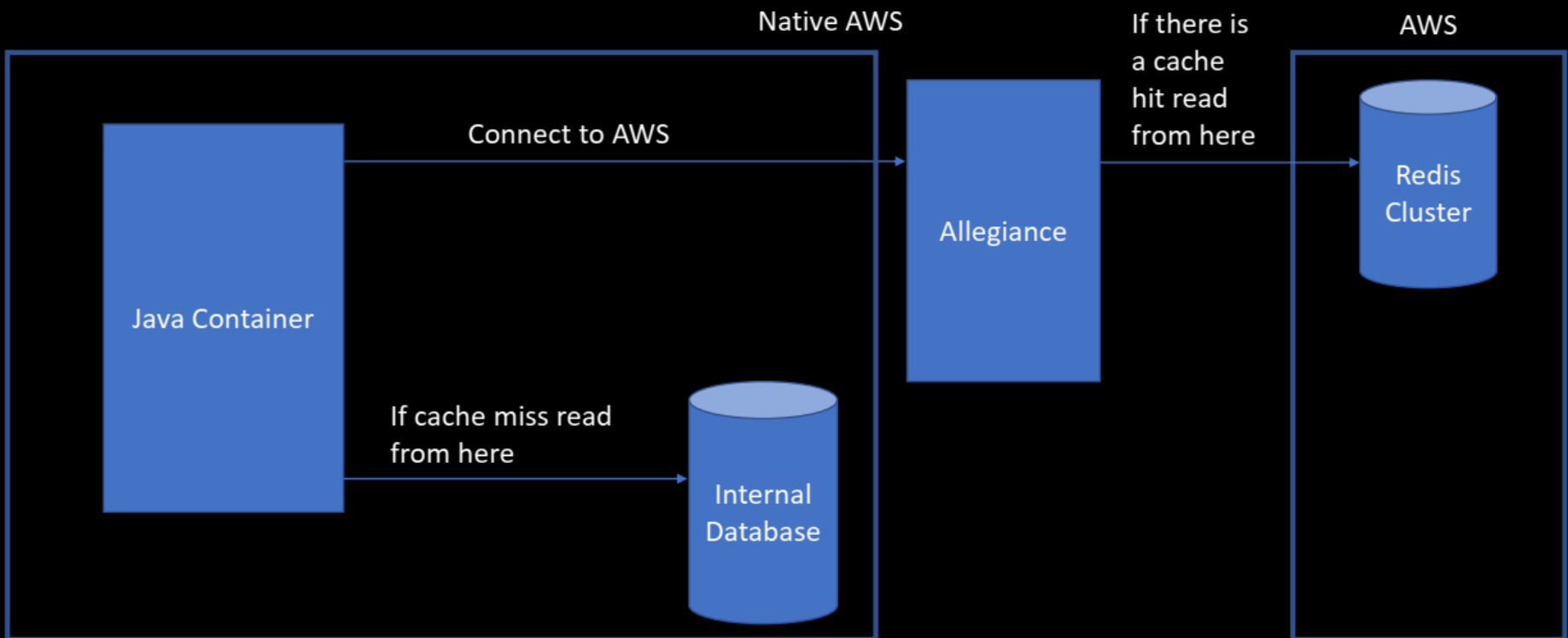# Slides comparing original and proposed, but unclear what the nature of the change is.

Slides comparing original and proposed,
but unclear what the nature of the change is.

[Alley, 2013]

Again, change title from topic to message!

Original infrastructure was entirely in-house

[Alley, 2013]
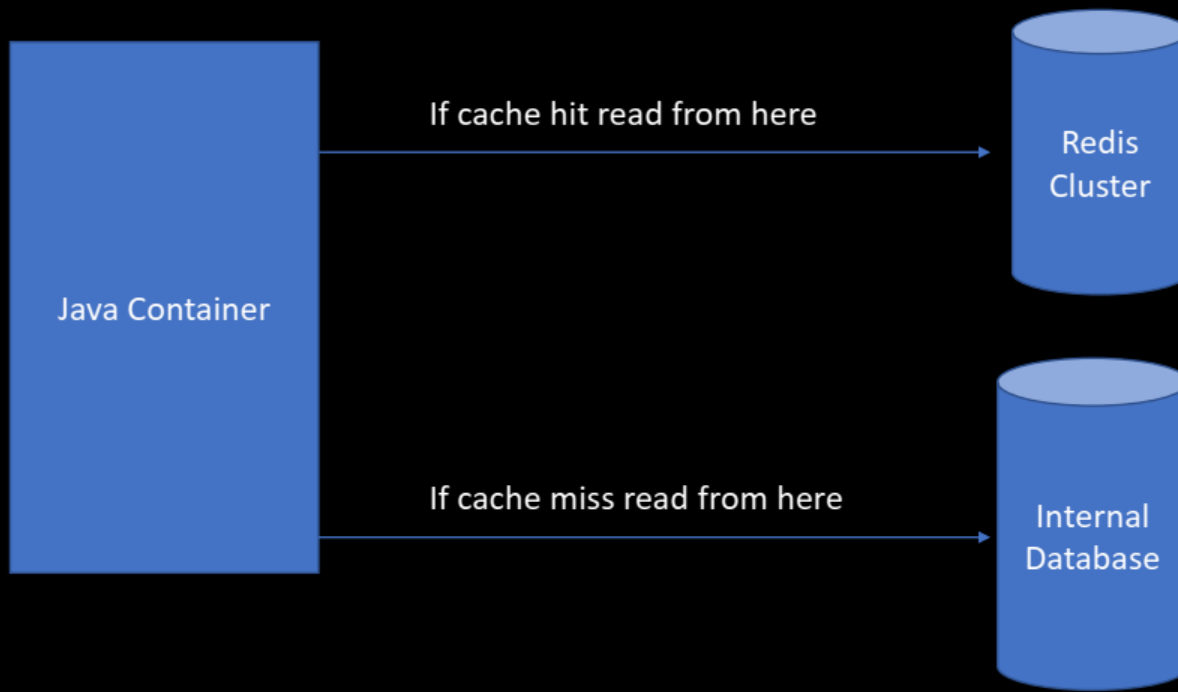
Again, change title from topic to message!

Proposed infrastructure houses Redis in AWS cloud

Proposed Infrastructure

[Alley, 2013]