



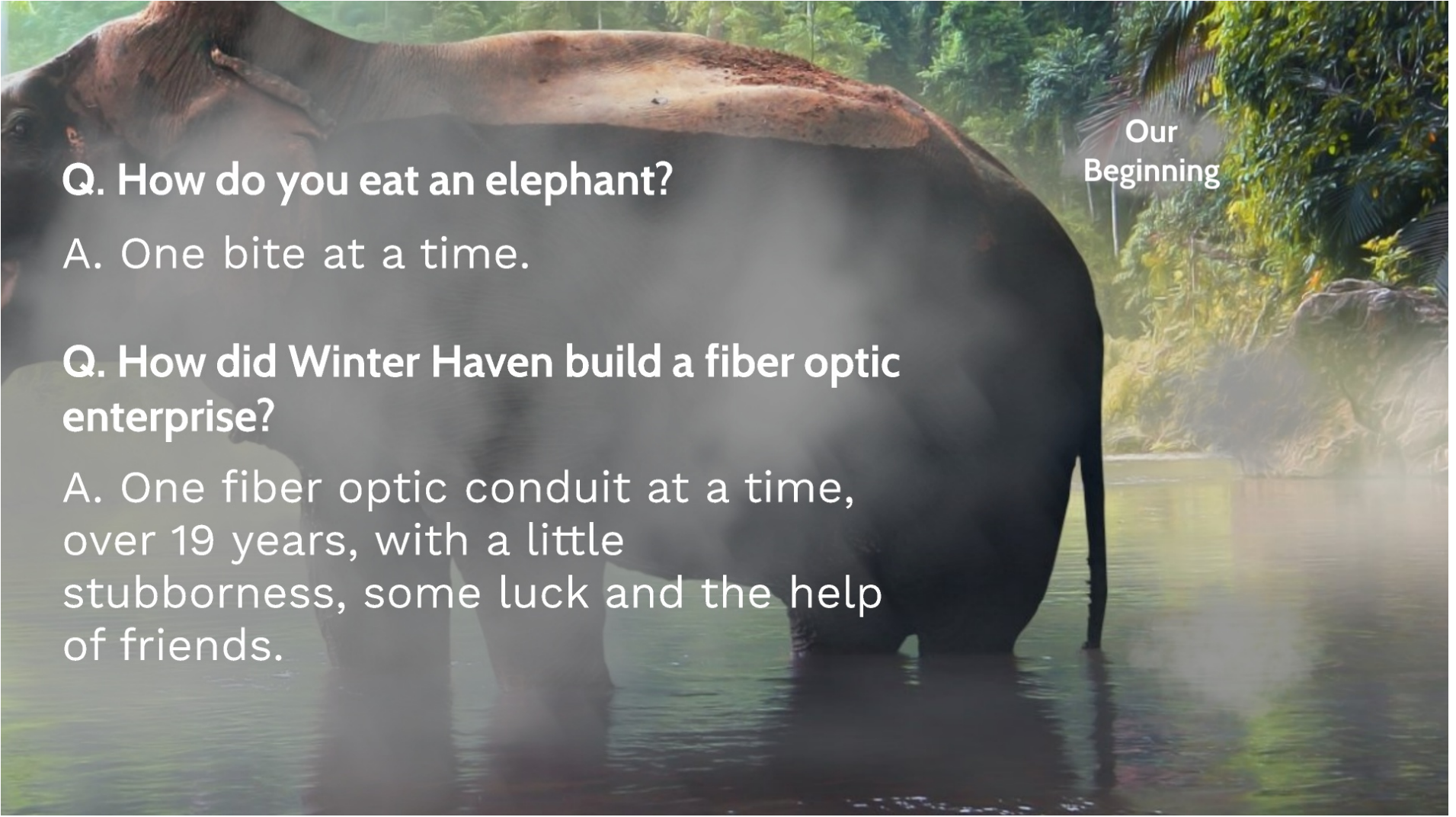
Why Fiber?

Tilting the  
Balance

Our Story

# HOW TO EAT A FIBER ELEPHANT

by HIEP NGUYEN | SMART CITY OFFICER | CITY OF WINTER HAVEN, FL

An elephant is standing in a body of water, possibly a river or lake, in a lush tropical environment. The elephant's back is visible, showing a large, light-colored patch of skin. The water is calm, reflecting the surrounding greenery. The background is filled with dense tropical foliage, including palm trees and other plants. The overall scene is peaceful and natural.

Our  
Beginning

**Q. How do you eat an elephant?**

A. One bite at a time.

**Q. How did Winter Haven build a fiber optic enterprise?**

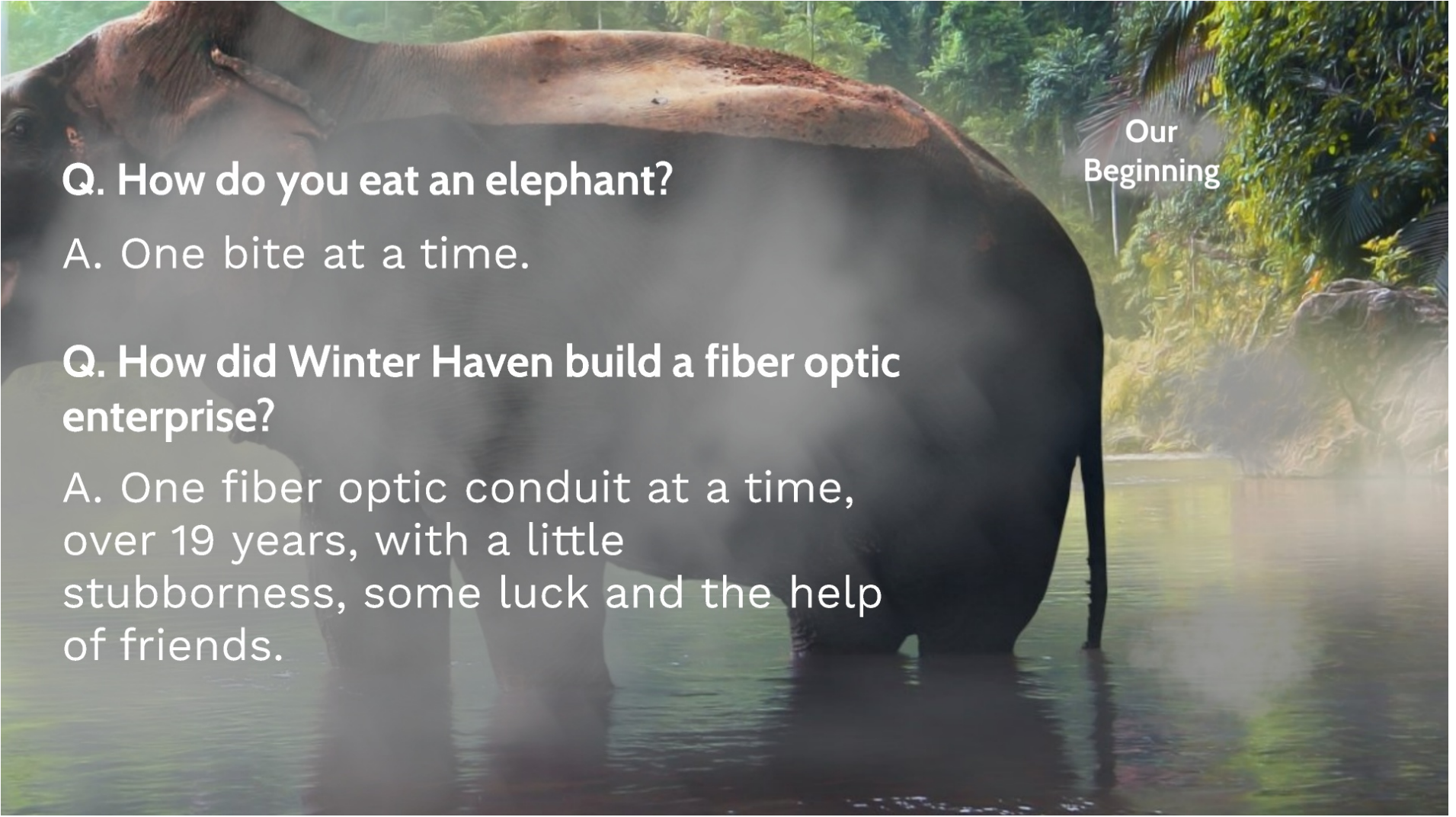
A. One fiber optic conduit at a time, over 19 years, with a little stubbornness, some luck and the help of friends.



2003

- Technology Services Department created
- IT Strategic Plan created
- Need for solid IT infrastructure, including fiber



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2004

- Beautification of Downtown Winter Haven
- Discovered Dig Once from Santa Monica, California



- Charley, Jeanne, Frances and Ivan

# Dig Once

- Leverage existing transportation, utilities, public works, and recreation projects to add fiber optic conduit
- Reduces cost of installation, and avoids tearing up the ground from multiple projects
- Install multiple conduit along key routes





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## 2004 Hurricanes showed us the importance of underground fiber



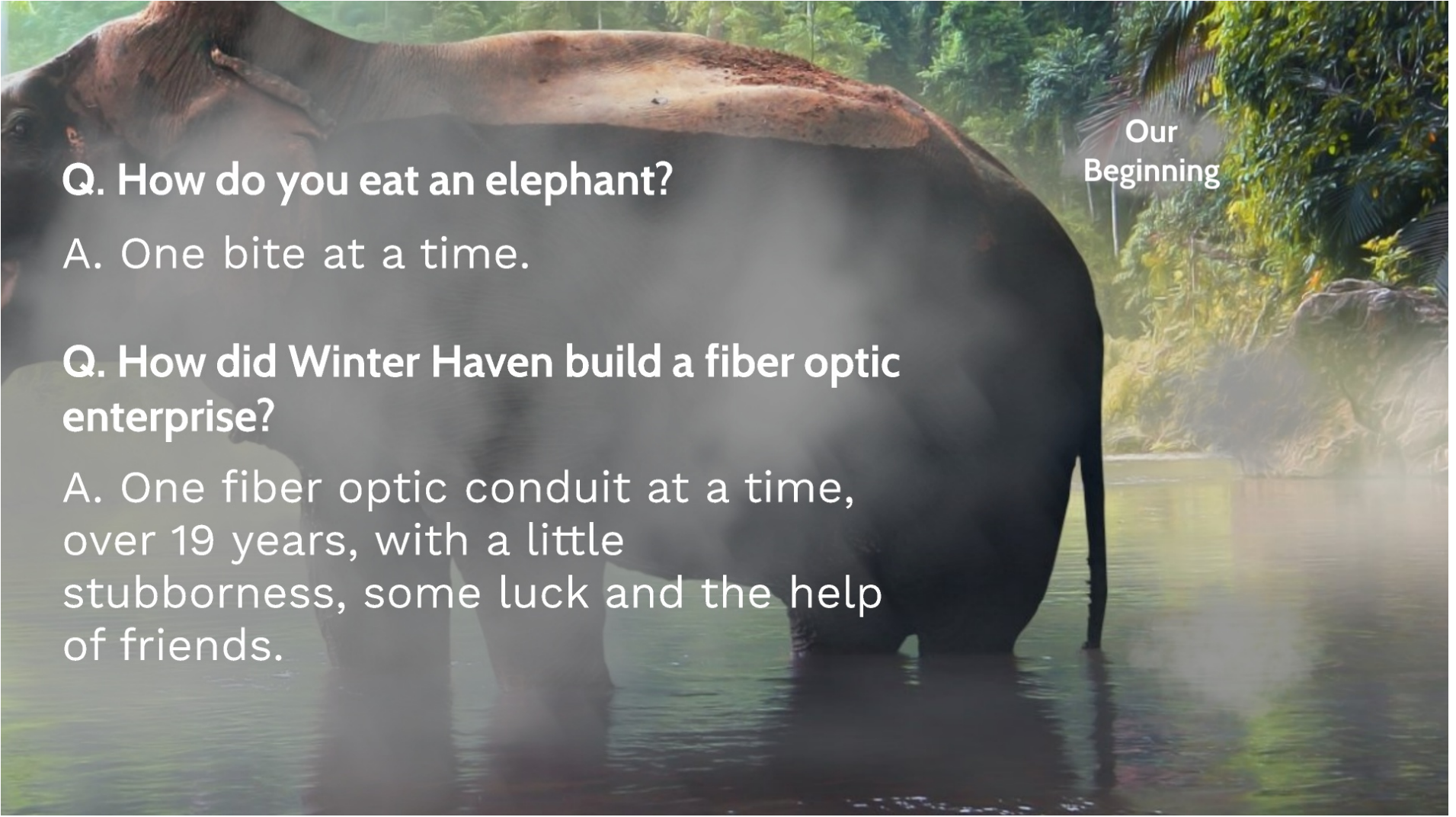


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An elephant is standing in a body of water, possibly a river or lake, in a lush tropical environment. The elephant's back and head are visible, and it appears to be partially submerged. The background is filled with dense green foliage and trees. The text "Our Beginning" is overlaid in the upper right corner.

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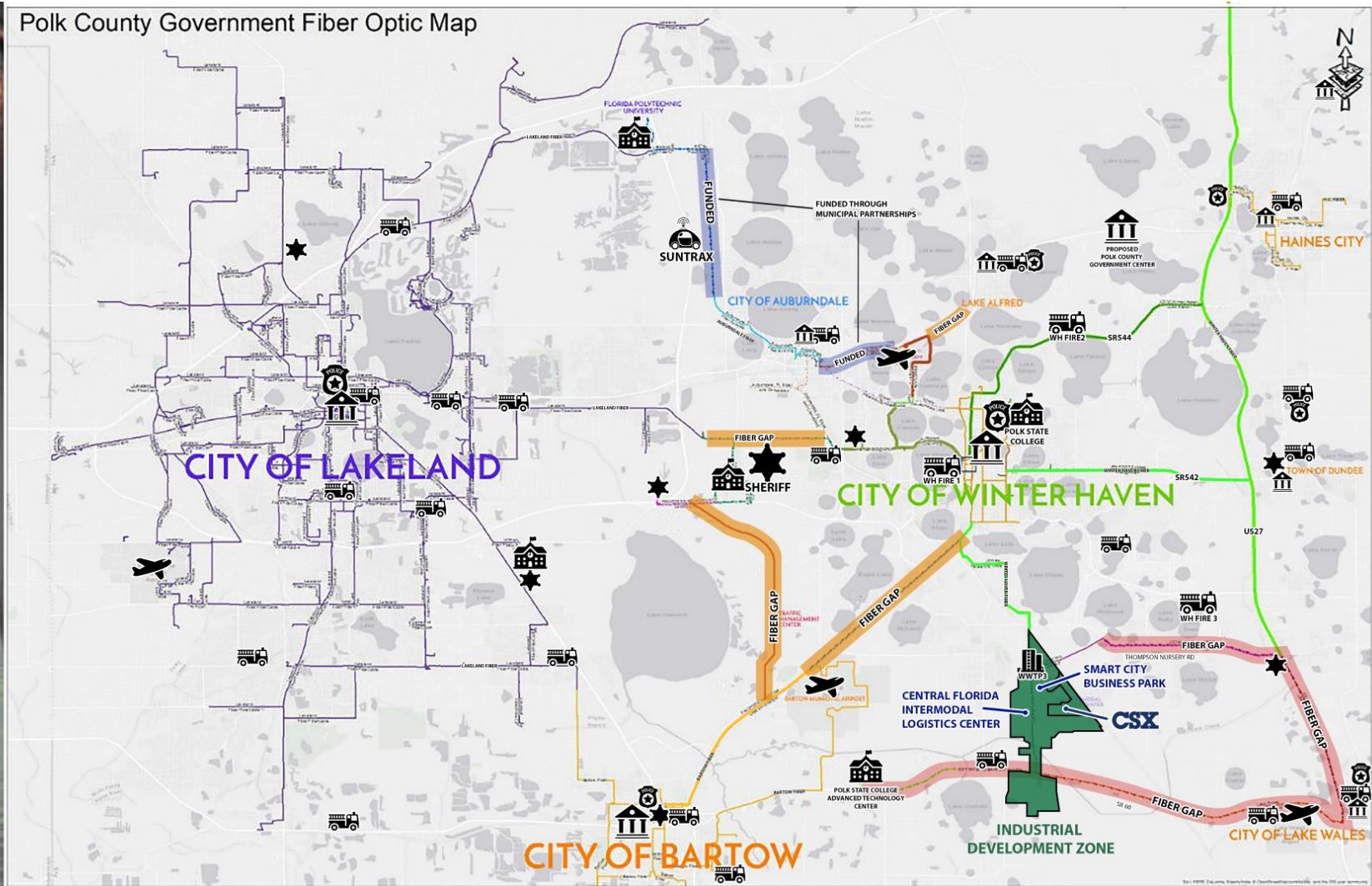




## Expanding Our Fiber Footprint and Understanding

- 2005+ Continue Dig Once - used telecom savings to justify (learned from Santa Monica)
- 2008 FDOT Advanced Traffic Management System - 13 miles of fiber conduit installed
- 2012 Polk Broadband Plan
- 2014 Winter Haven Broadband Study
- 2015 Dark Fiber Enterprise
- 2018 Dig Once joint trench with FDOT - 30 miles along major highways (US27 and SR544)
- 2022 Fiber conduit swap with Summit Broadband - expand 40 miles of fiber conduit without direct capital outlay
- 2022 Dark Fiber Activation of Industrial Zone Grant

# Polk County Government Fiber Optic Map

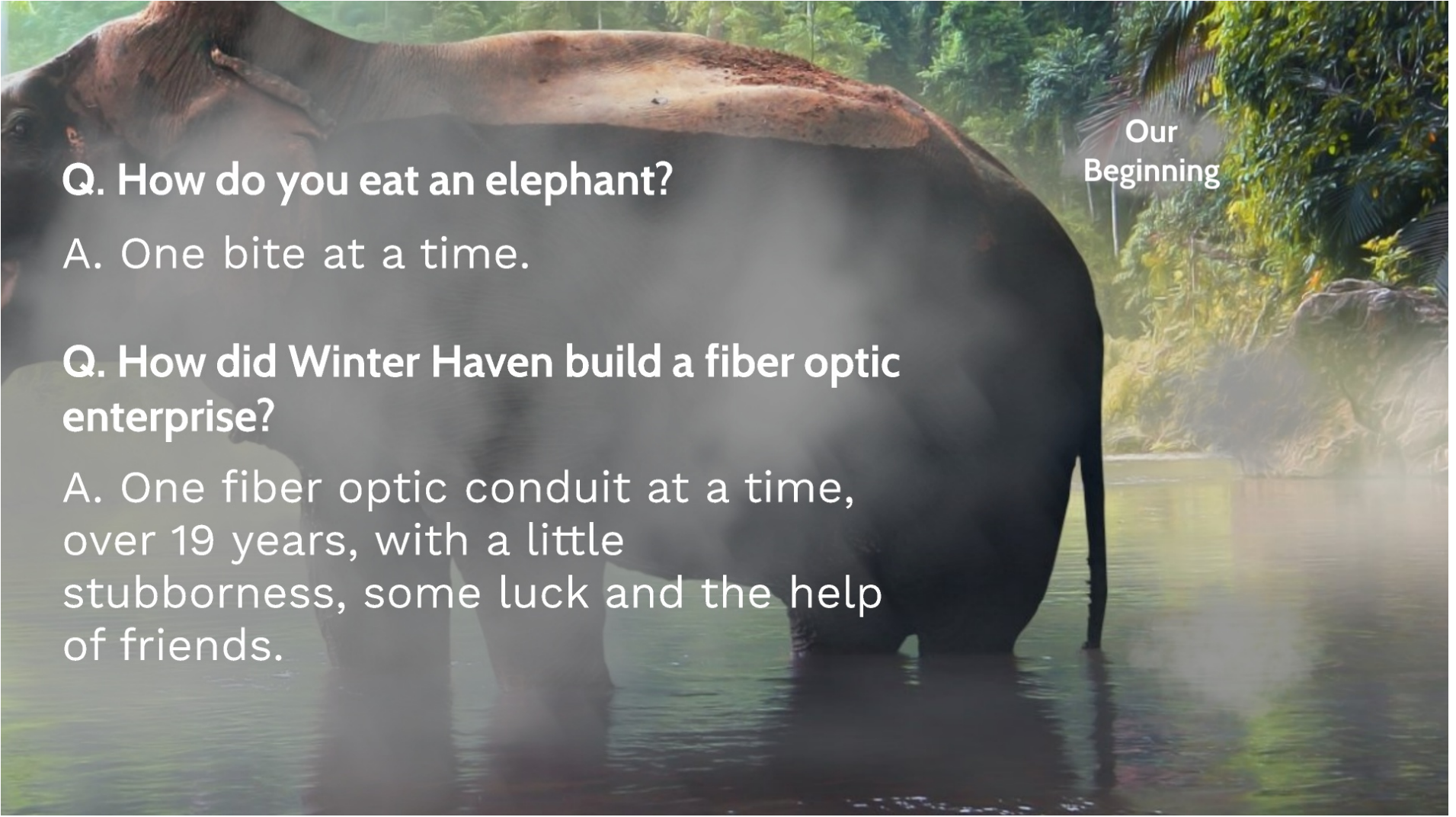






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An elephant is standing in a river, partially submerged. The background is a lush tropical forest with green foliage and trees. The elephant's back is visible, showing some reddish-brown patches. The water is calm, reflecting the surrounding greenery.

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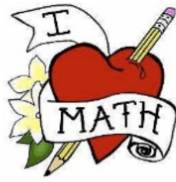
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## BLAIR LEVIN'S BROADBAND EQUATION:

$$\text{CapEx} + \text{OpEx} > (1\text{-risk}) \text{ Revenues} + \text{System Benefits} + \left[ - \text{Threat of Losses Due to Competition} \right]$$



$$\text{CapEx} + \text{OpEx} < (1\text{-risk}) \text{ Revenues} + \text{System Benefits} + \left[ - \text{Threat of Losses Due to Competition} \right]$$

Diagram illustrating the equation with arrows indicating the relationship between the two sides:

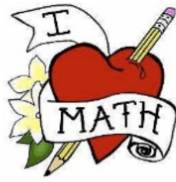
- Three green arrows point downwards from the left side of the equation ( $\text{CapEx} + \text{OpEx}$ ) to the right side.
- Three green arrows point upwards from the right side of the equation ( $(1\text{-risk}) \text{ Revenues} + \text{System Benefits} + \left[ - \text{Threat of Losses Due to Competition} \right]$ ) to the left side.





## Leverage what we already are doing

- Use dig once with electric, water, sewer, transportation, recreation projects to install fiber
- Re-invest telecommunication savings to fund fiber builds
- Install more than need, especially along key routes
- Extra fiber conduit, or conduit banks, can be swapped
- Collaborate with others and interconnect your assets
- Leverage the expertise of your existing employees



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Three green arrows point upwards from the bottom equation to the top equation, indicating a transition or comparison. Three green arrows point downwards from the bottom equation, indicating a decrease or negative impact.





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A photograph of an elephant in a lush, green jungle. The elephant is in the foreground, partially obscured by a semi-transparent text box. The background is filled with dense tropical foliage and trees.

# Fiber is Critical Infrastructure

- Fiber supports very high bandwidth levels
- Fiber is secure
- Fiber is intrinsically safe
- Fiber withstands harsh environments with impact to performance
- Fiber is immune to Electromagnetic Interference
- Fiber optic cable has a lifespan of 20-40+ years



# Fiber is transformational

- Internet speeds multiply 100 fold every 10 years
- New records at Petabits, or million Gigabits





An elephant is partially visible in the lower half of the image, standing in a lush green jungle. The elephant's head and trunk are on the left, and its body extends towards the right. The background is filled with dense tropical foliage and trees. The text is overlaid on the upper half of the image.

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