Ring Size Survey

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Introduction

- Survey existing customers to find the limits of:
    - Ring circumference
    - Number of nodes
- Why is this important?
    - Size matters
    - Need to determine reasonable bounds with acceptable margin for growth to engineer the standard
        - protocols should work well within the operational zones
        - protocols should work with degradation outside of the zones

Introduction

- ## Methodology

  - ### Cisco surveyed customers for largest ring deployed

  - ### Nortel extracted deployment / planning data from selected customers representing typical deployments

  - ### Discrete data points have not been revealed due to sensitivity of the data
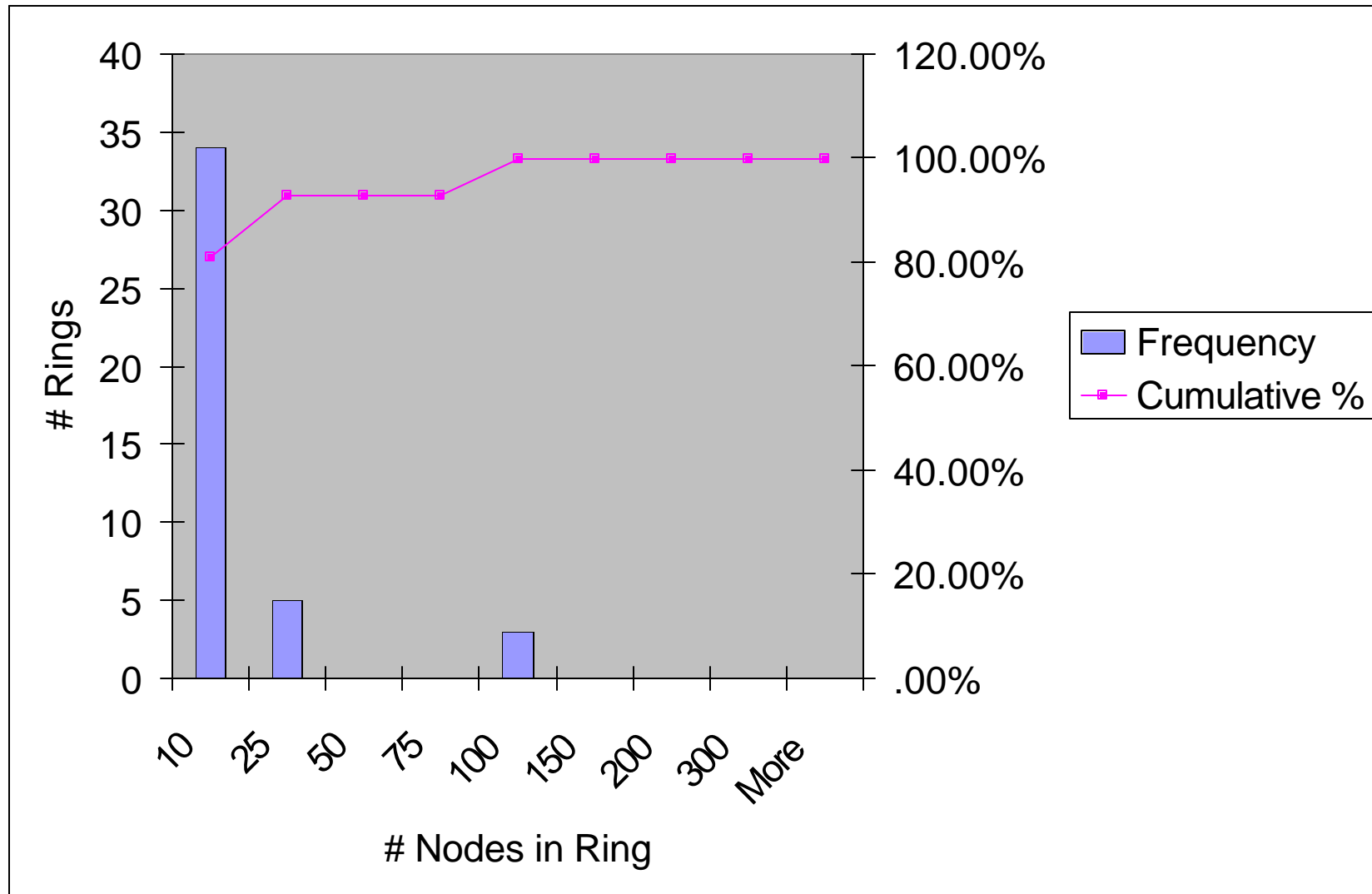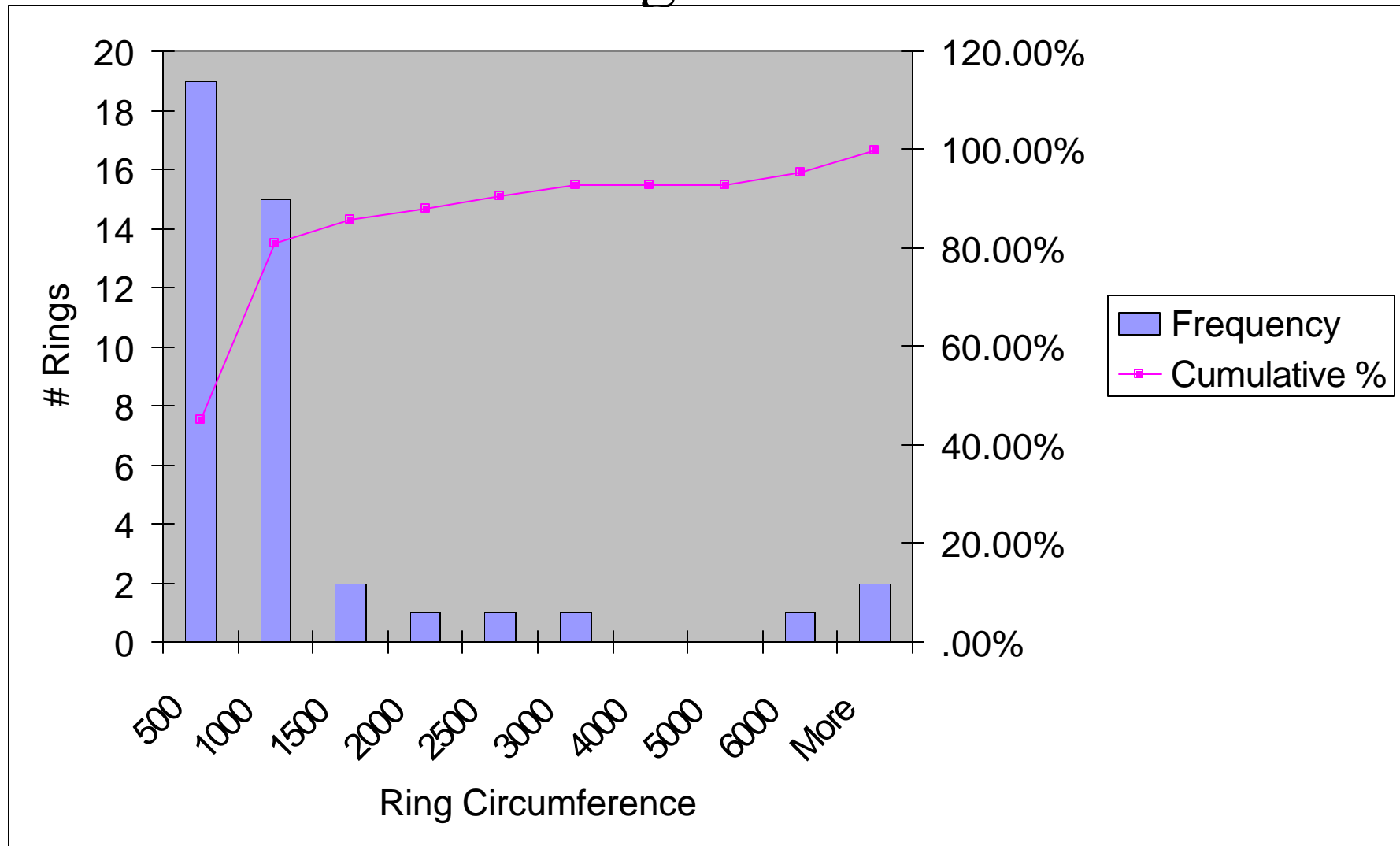
Data Removed From Survey

- One customer has a 15000 km ring under design with 8 nodes

  – Data point is an outlier and while interesting should not drive the standard
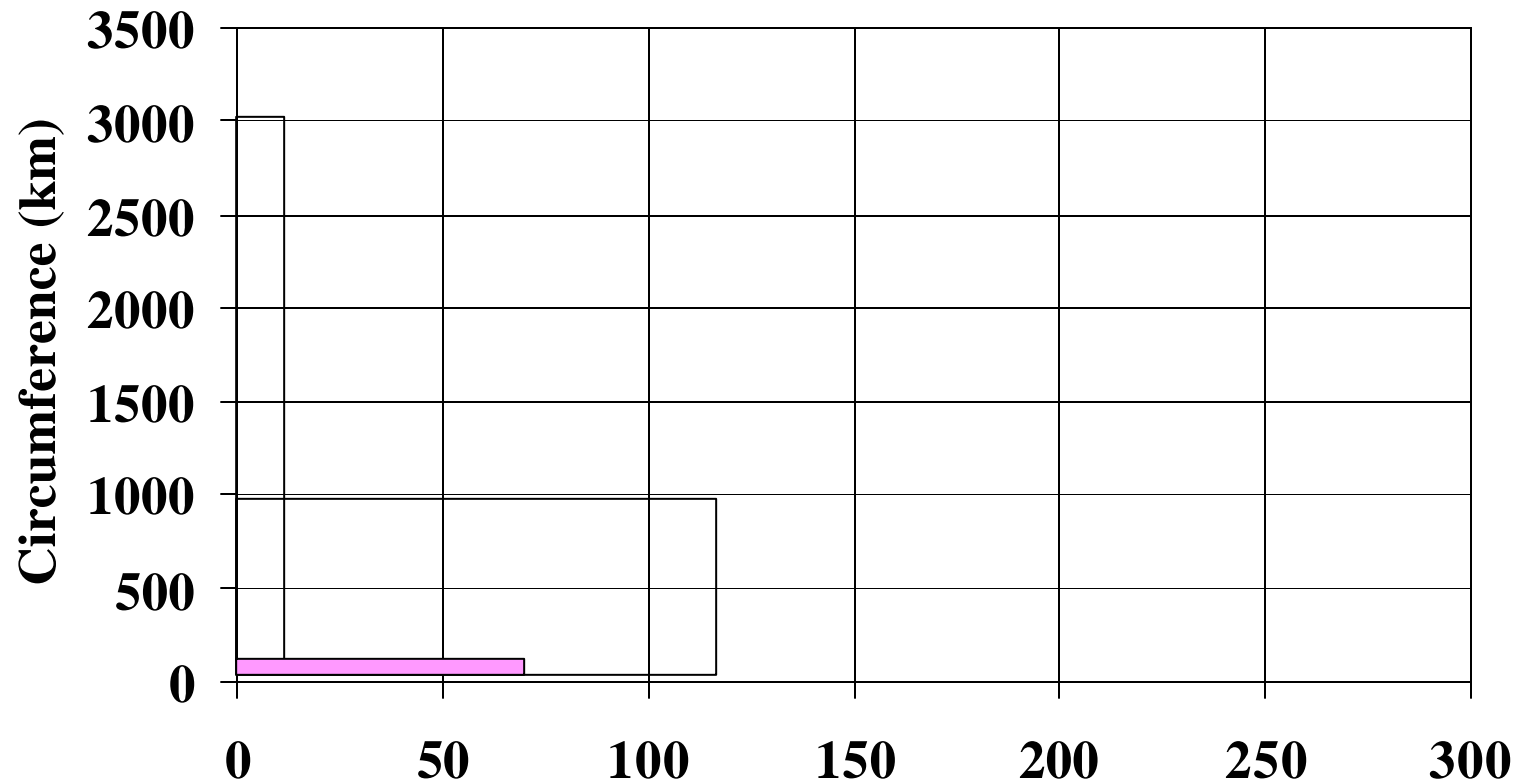
Cisco+Nortel Node Count Data

Cisco+Nortel Ring Circumference Data

Circumference vs Node Count

LAN   99%   ☐
MAN   99%   ☐
WAN   99%   ☐

Operational Zone Suggestion

- Optimize for 99% of cases
  - LAN
    - Circumference < 5 km
    - Node count < 64
  - MAN
    - Circumference < 1000 km
    - Node count < 128
  - WAN
    - Circumference < 3000 km
    - Node count < 16

Ring Bounds Suggestion

- Upper bound on number of nodes at least 128
  - Select 256 for reasonable margin
  - field width for TTL is 8 bits which is a "natural" size
- Upper bound for ring size of 6000 km
  - Both Nortel and Cisco have ring deployments of this size