

(T4.1-O5)

**Disclaimer**

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# Near Real Time Data Dissemination and Warehousing Protocol

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## Need for Optimizations

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- **Criticality of Time between Recording & Reporting**
- **Possible Congestions on Data Channels**
- **Machine to Machine (M2M) interaction calls for optimality (minimum essentials)**
- **Optimization at source is more enabling – ab initio**

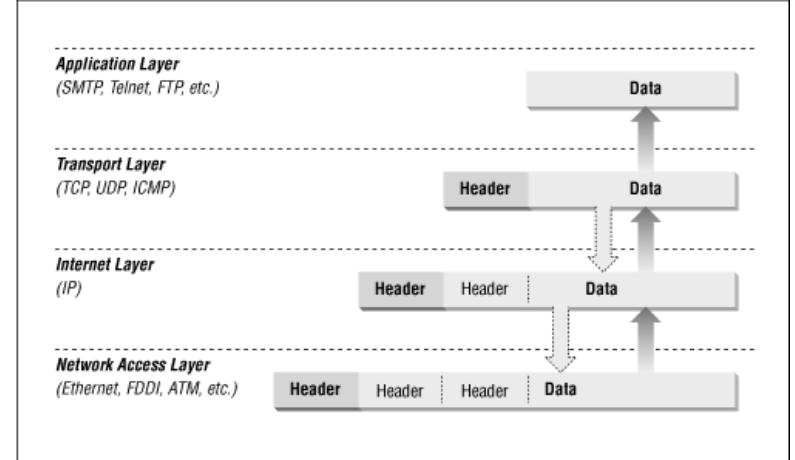
## What's the Change

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- **Importance of Complete data remains a fact**
- **Sampling Rates (Nyquist) will remain there for data**
- **Higher resolution data yields more intricate details**
- **Recommended Optimizations are for addressing stated objectives in parallel**

## Data Dissemination – Challenges

- **Redundancy of Information (Data Content)**
- **Additional Overheads**
  - Layer Headers
  - Addressing Information
  - Security Overheads
  - Sequence, Flags, Sizes etc



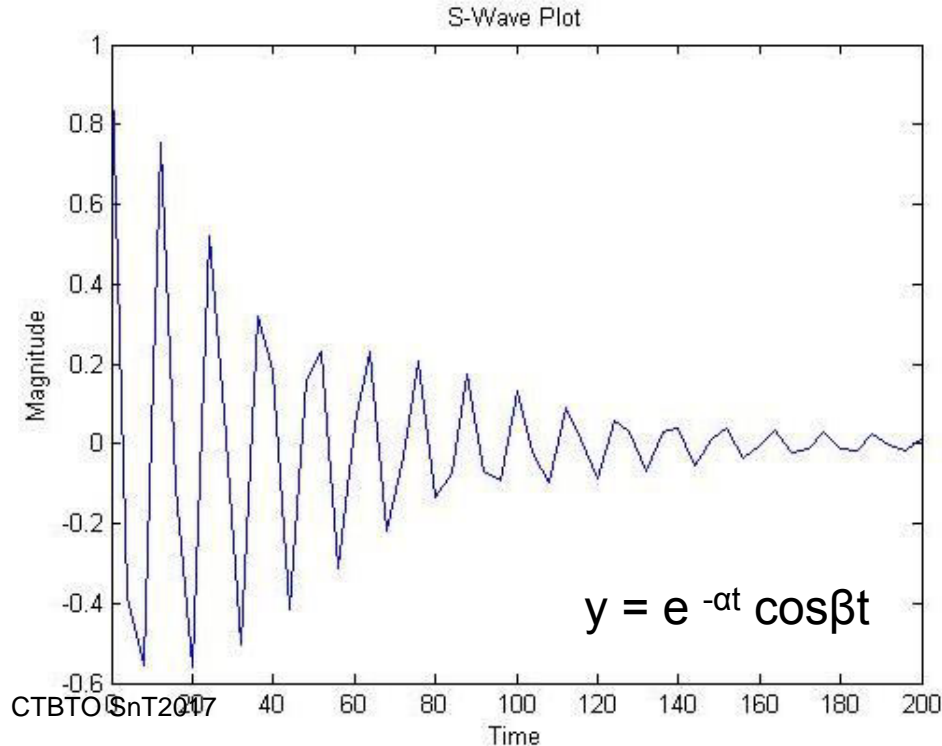
## Data Dissemination Optimization – Options

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- **Reducing Data Content – Redundant Information**
- **Reducing Overheads**

***Ideal is to work on both***

## Initial Data Reduction – Redundant Information

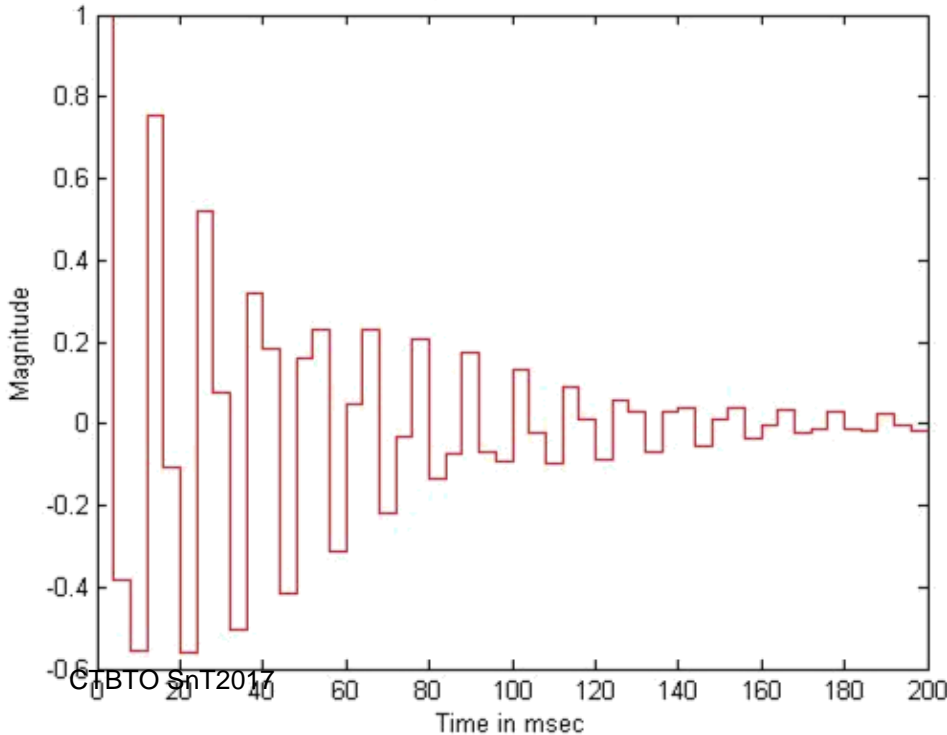


*In some of the waveforms, Magnitude is of more interest than frequency at least initially for related purposes*

*Magnitude Thresholds therefore can be separated from other details*

## Reducing Data – Determining Threshold Values

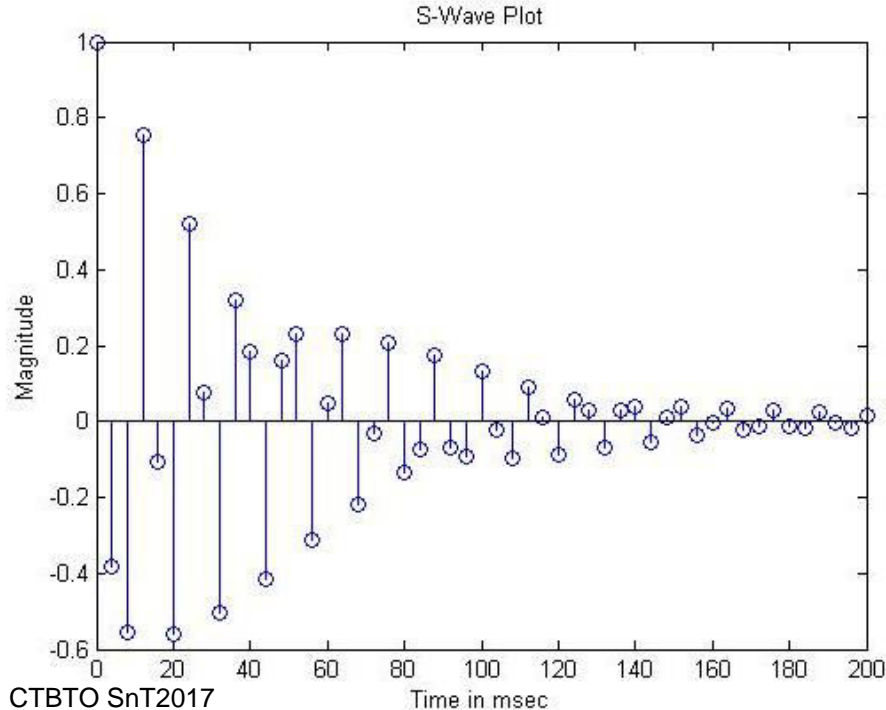
Stair Plot S-Wave



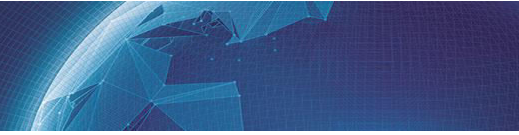
***The points where Magnitude Change can be determined forming stair like plot***

***The steps determine increase or decrease of Magnitude along the time line***

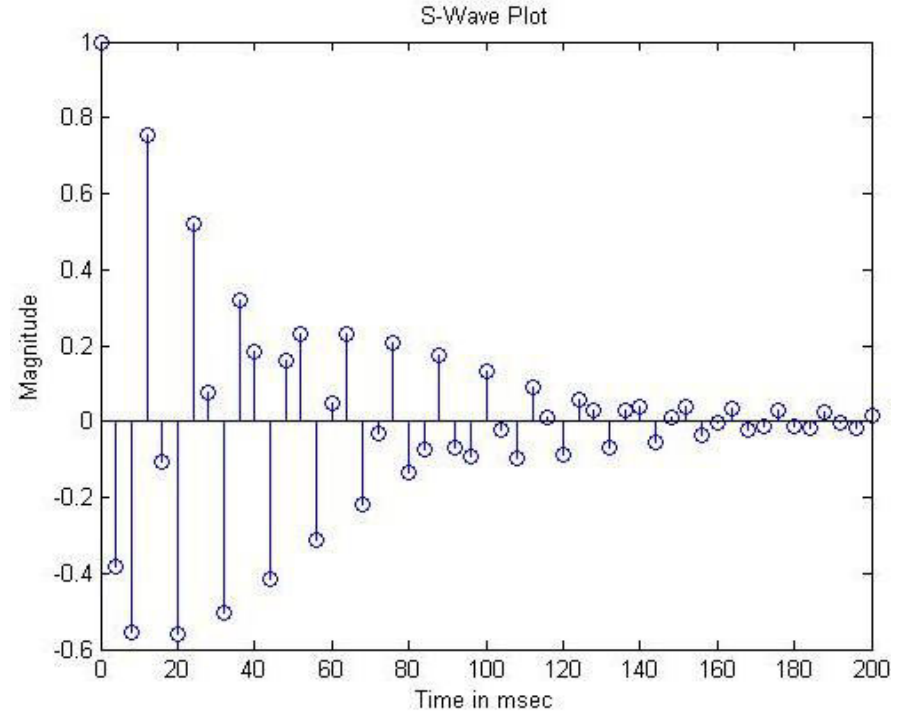
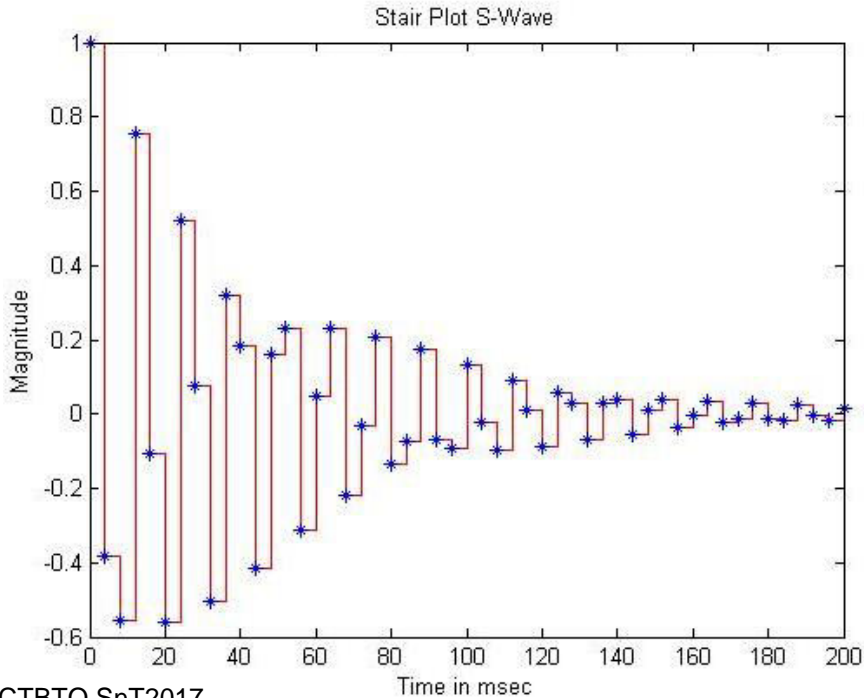
## Reducing Data – Sampling Threshold Values



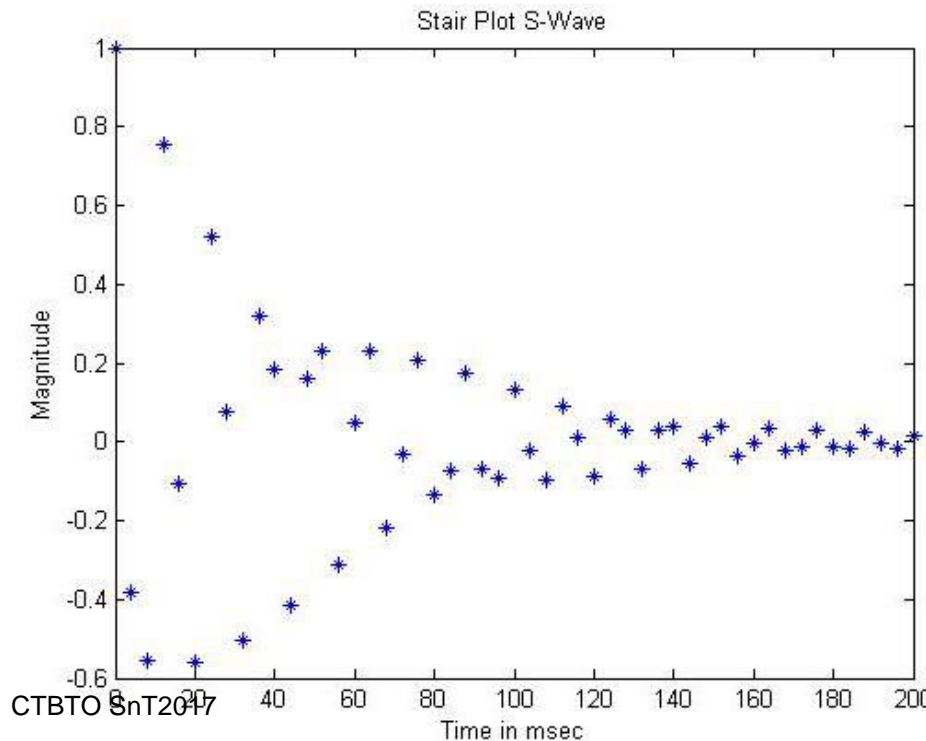
***While whole signal may be sampled as per existing device designs, reduced sampling of threshold values may help in transmitting an estimate of the magnitude values***



## Reducing Data – Sampling Threshold Values



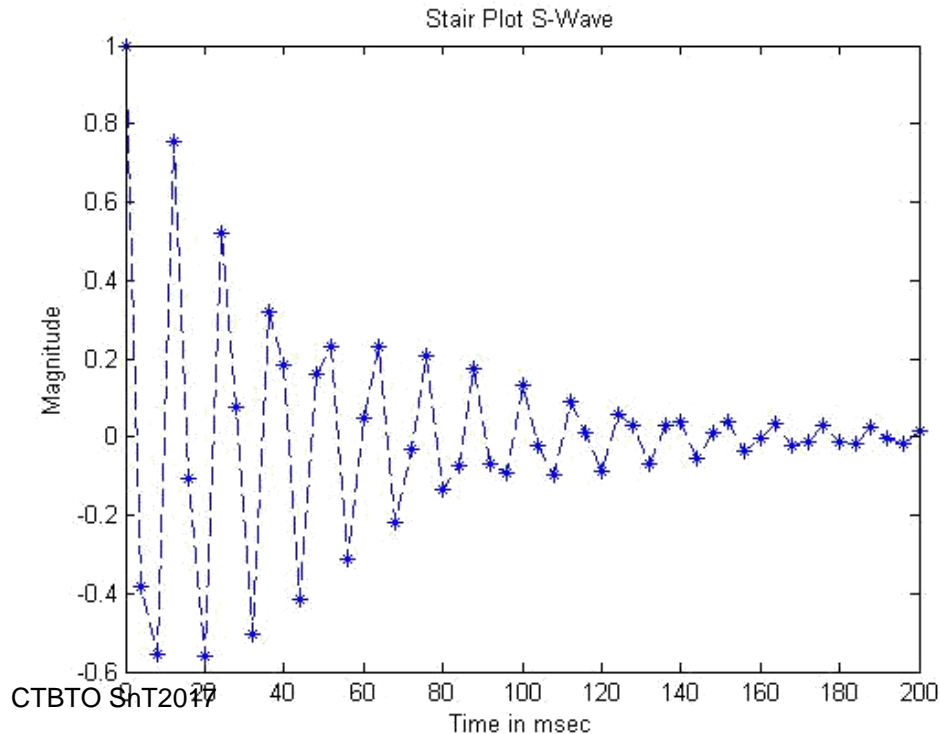
## Reducing Data – Transporting Threshold Values



***Threshold Values including those of the terminal / dampening signal can be transmitted to the receiver at remote site***

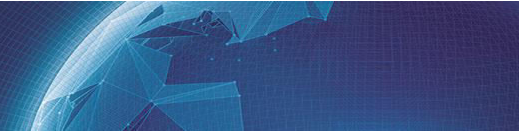
***51 values in this case***

## Reducing Data – Transporting Threshold Values



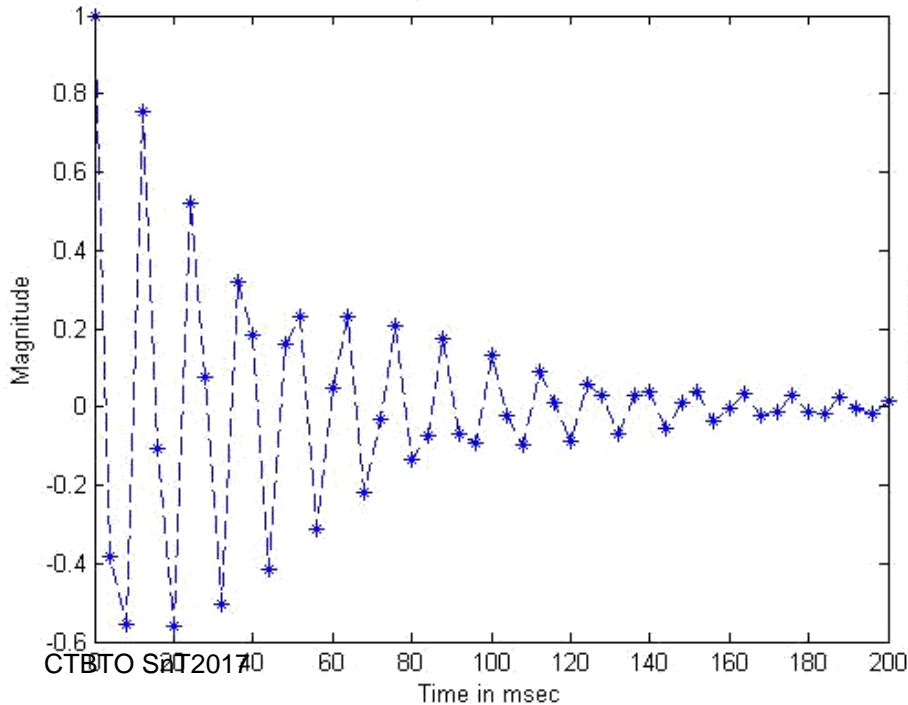
***The estimated signal can be formed at the remote site joining threshold values***

***Signal transport overheads are reduced due to reduction in details of the signal***

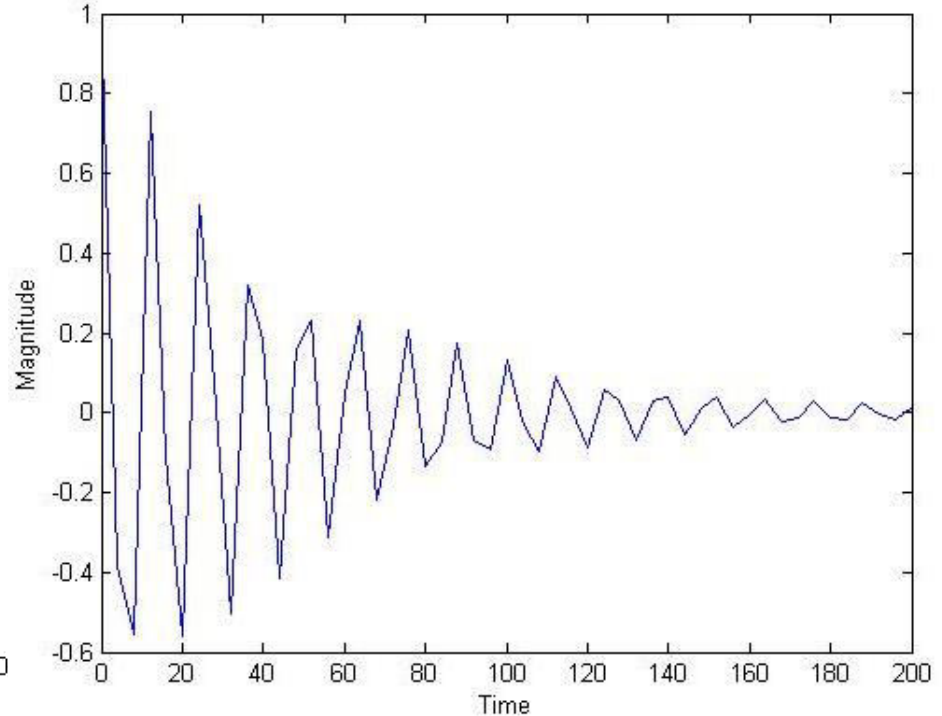


## Reducing Data – Transporting Threshold Values

Stair Plot S-Wave

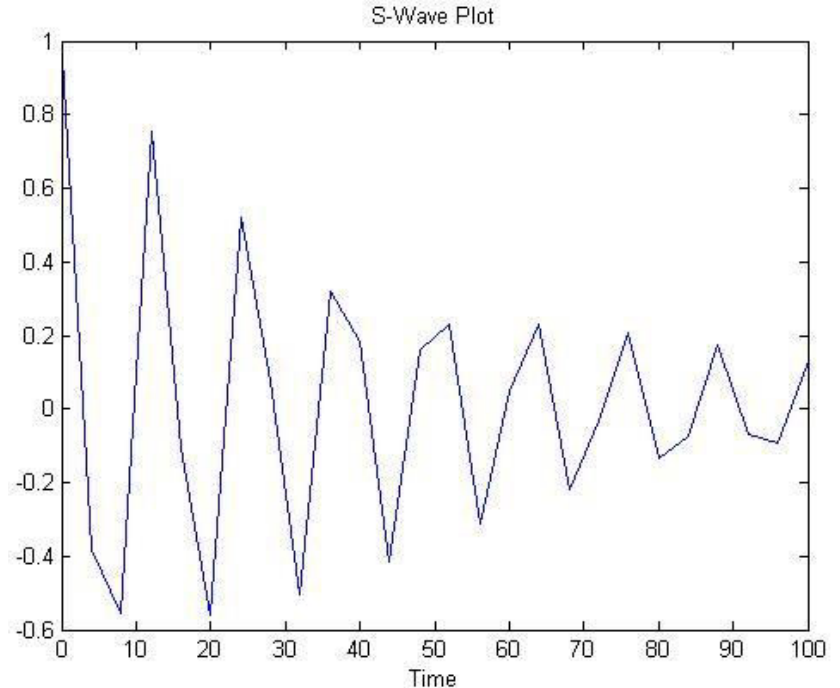
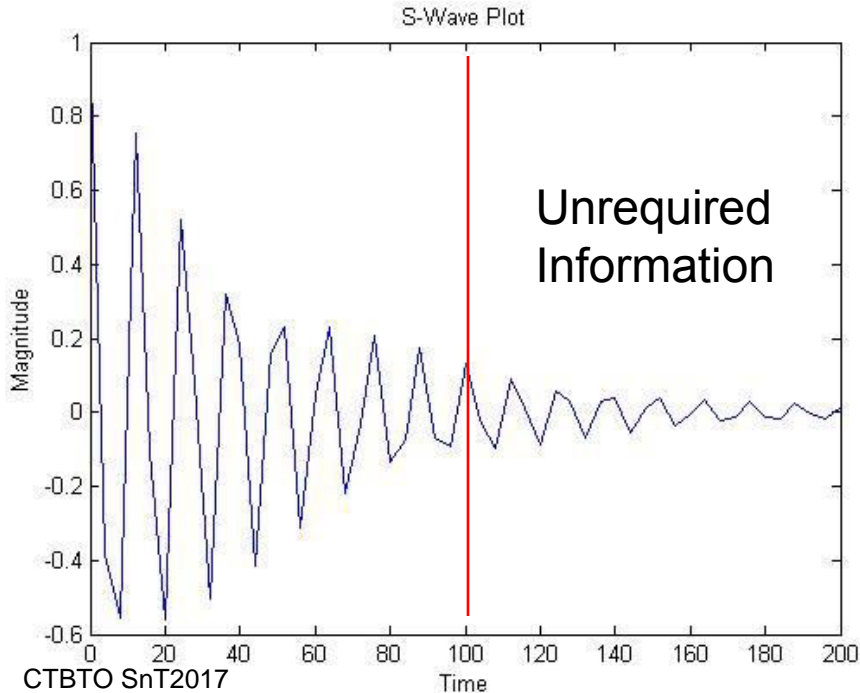


S-Wave Plot

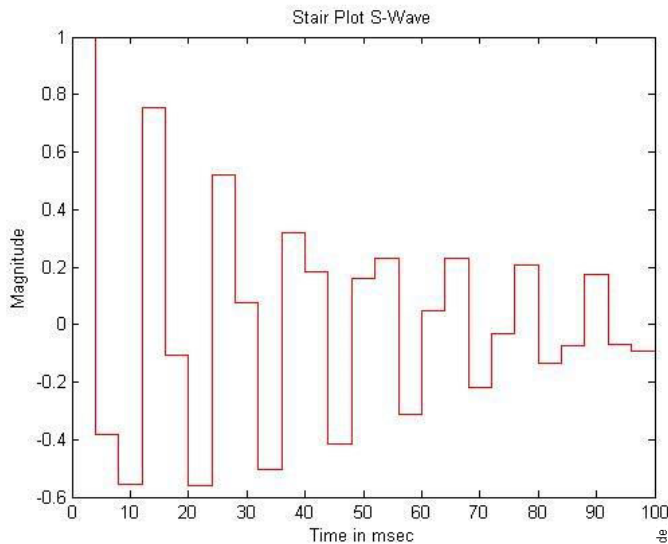


## Reducing Data Content – Redundant Information

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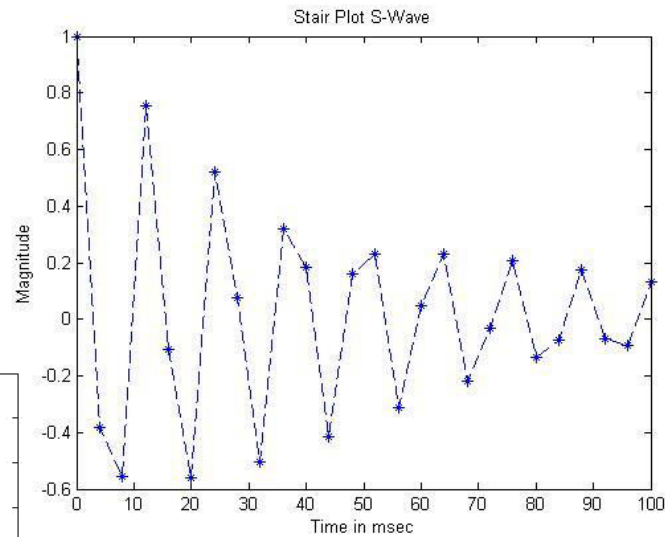
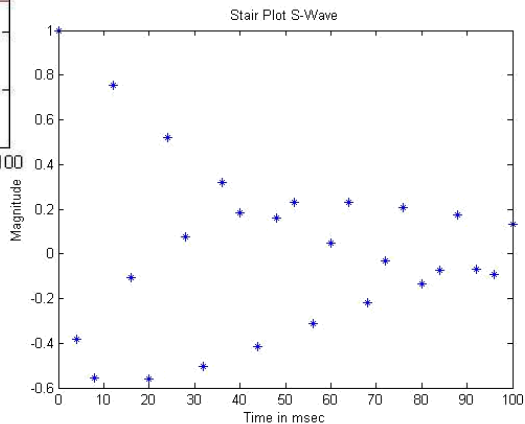


## Reducing Data Content – Redundant Information



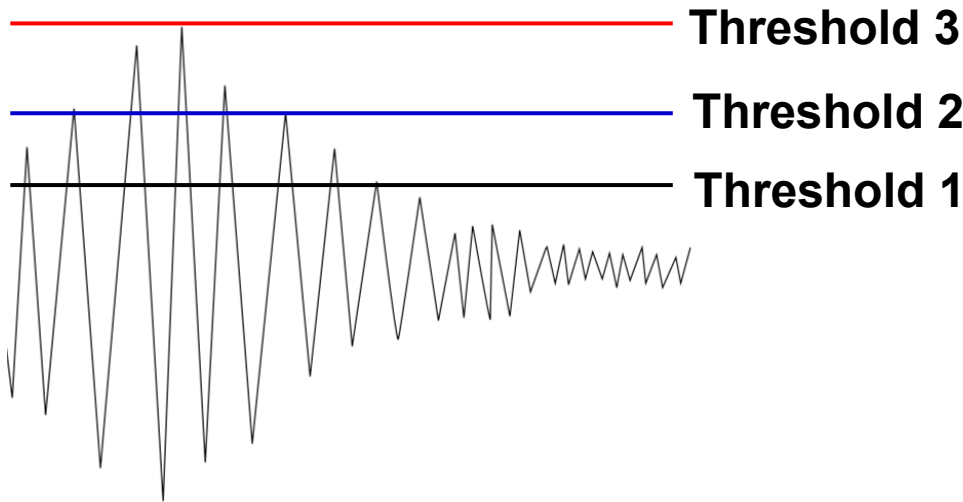
26 Values  
8 bit resolution

**26 Bytes of Data**



## Reducing Data – Determining Threshold Values

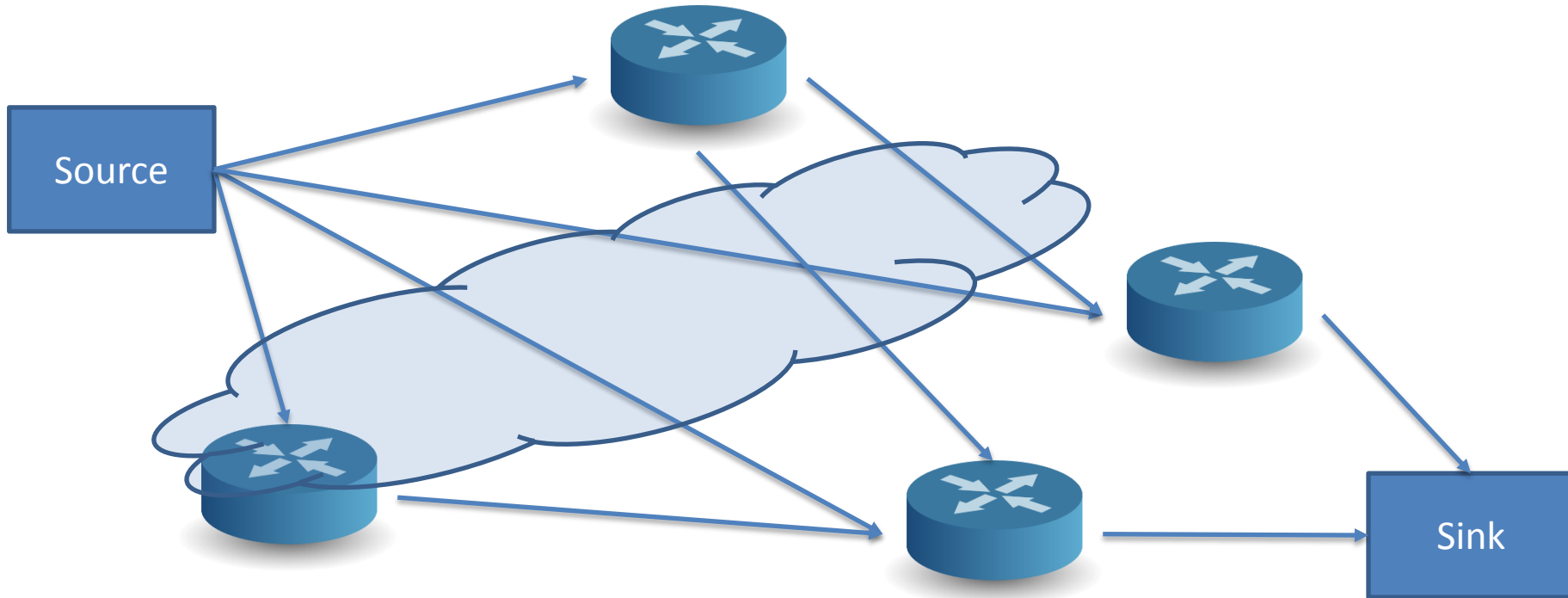
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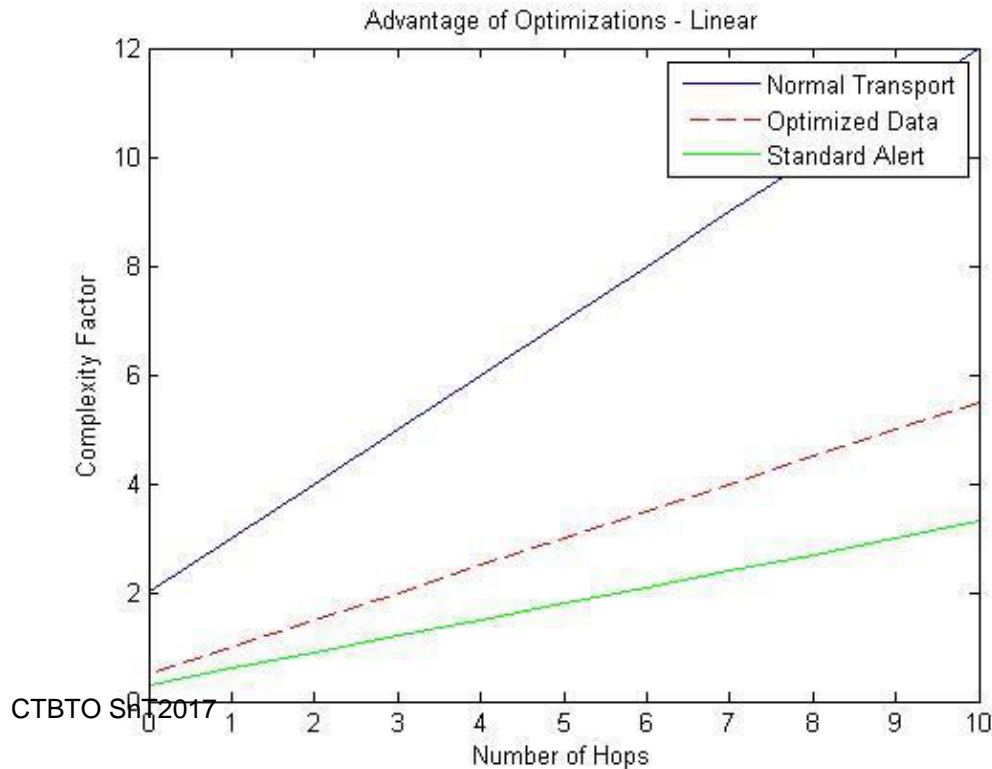
*Here we can pass ONE Value indicating the Threshold of the Signal and therefore can have predefined fixed broadcasts corresponding to the magnitude*

## Broadcasting Threshold Values

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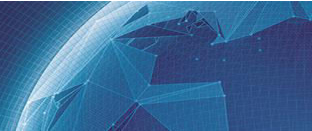
## Advantage – In most simple terms



**Gap between performance widens as number of hops increase during routing**

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# Thanks