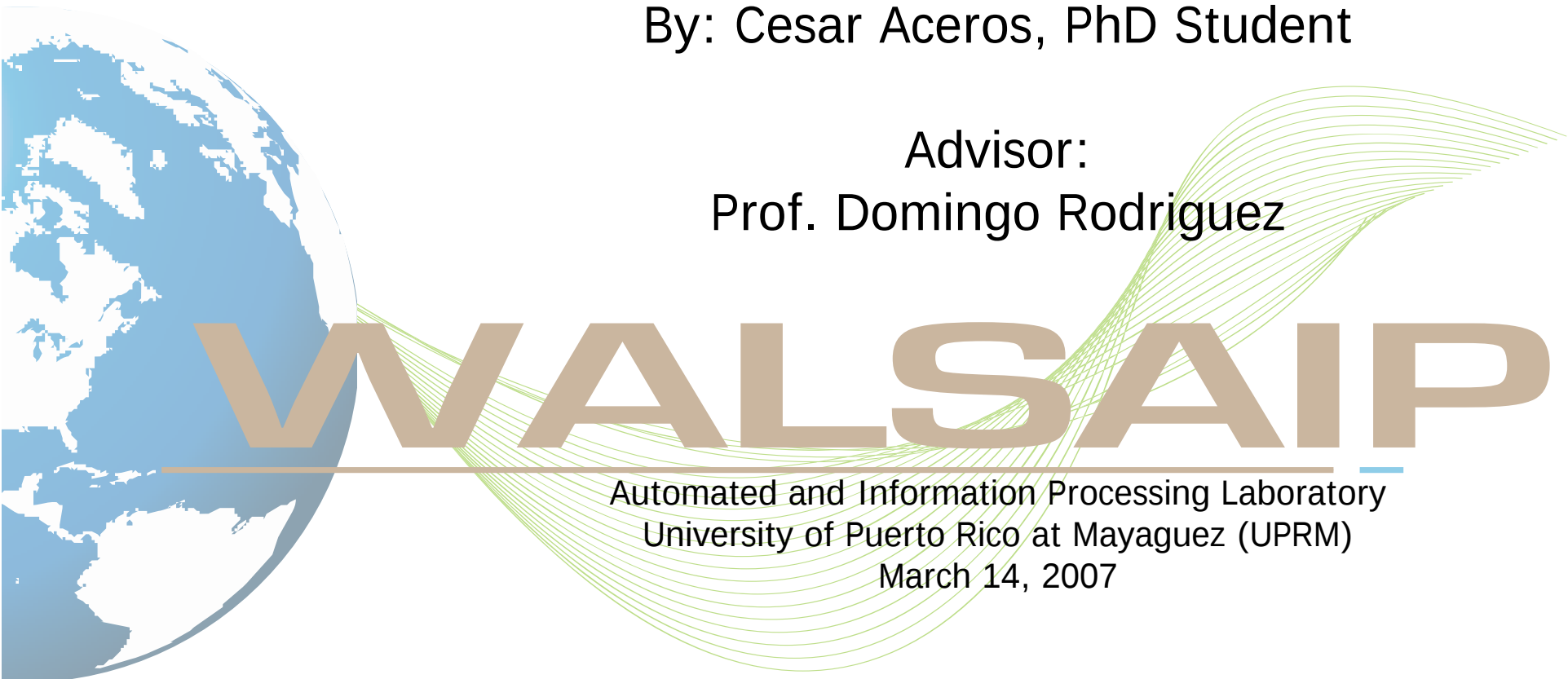


SIGNAL OPERATOR ALGEBRAS FRAMEWORK OVER DISTRIBUTED SIGNAL PROCESSING SYSTEMS

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Automated and Information Processing Laboratory
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CHIRP SIGNAL OPERATOR

$$\begin{aligned} x : \mathbb{Z}_L &\rightarrow \mathbb{C} \\ n &\mapsto x[n] \end{aligned}$$

$$\begin{aligned} \mathcal{C}_h : \ell(\mathbb{Z}_N) &\rightarrow \ell(\mathbb{Z}_N) \times \ell(\mathbb{Z}_N) \\ x &\mapsto c = \mathcal{C}_h \{x\} \end{aligned}$$

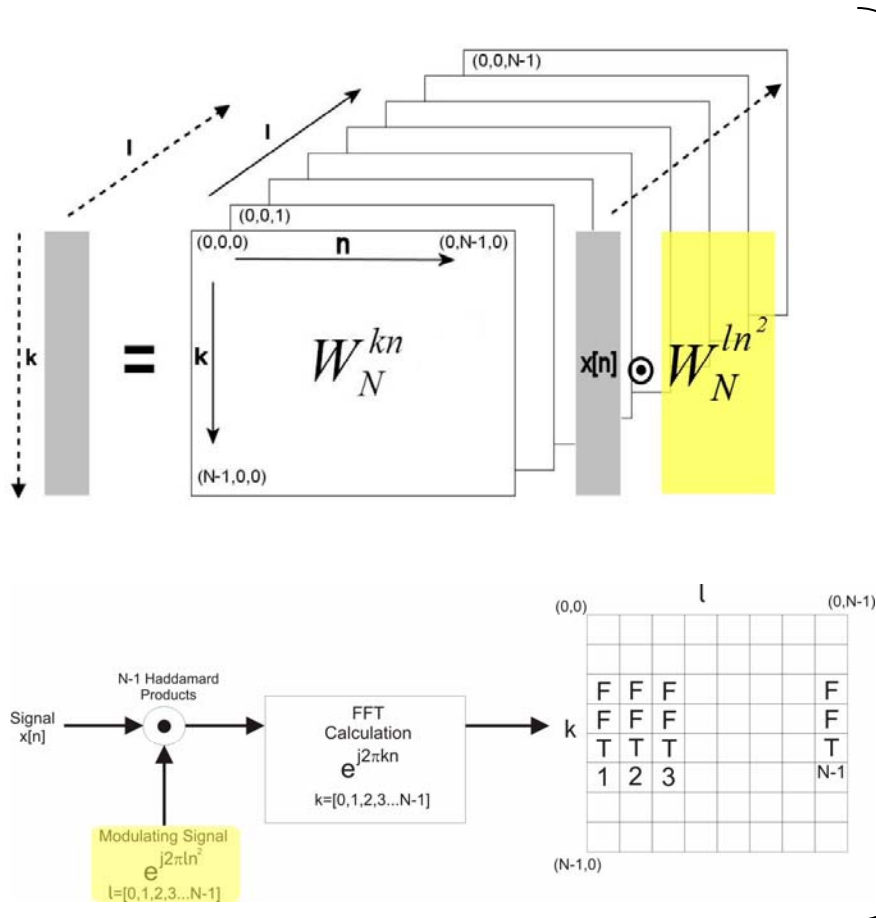
And the Discrete Chirp Fourier Transform (DCFT) Operator is defined as:

$$c[k, l] = (\mathcal{C}_h \{x\})[k, l] = \frac{1}{\sqrt{N}} \sum_{n=0}^{N-1} x[n] W_N^{ln^2 + kn}, \quad 0 \leq k, l \leq N-1$$

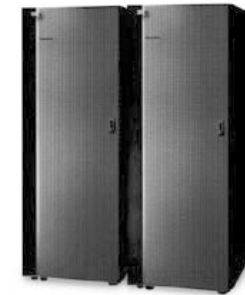


DCFT ALGORITHM IMPLEMENTATION

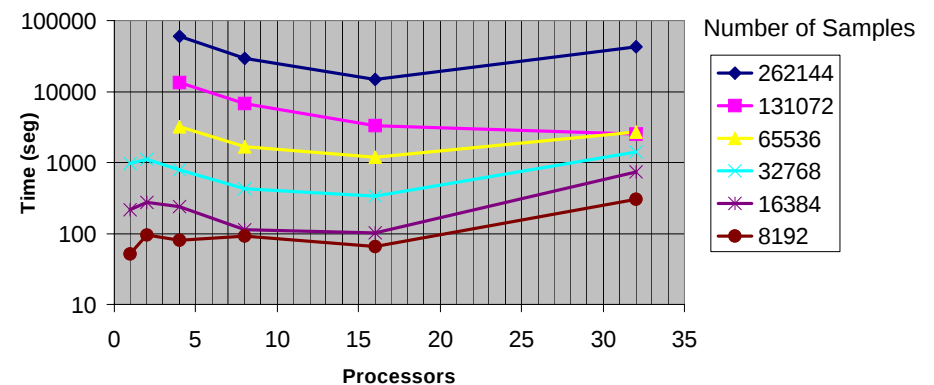
- DFT of non linear modulated signals:



PRELIMINARY MPI-CLUSTER RESULTS
IBM Cluster (Komolongma).

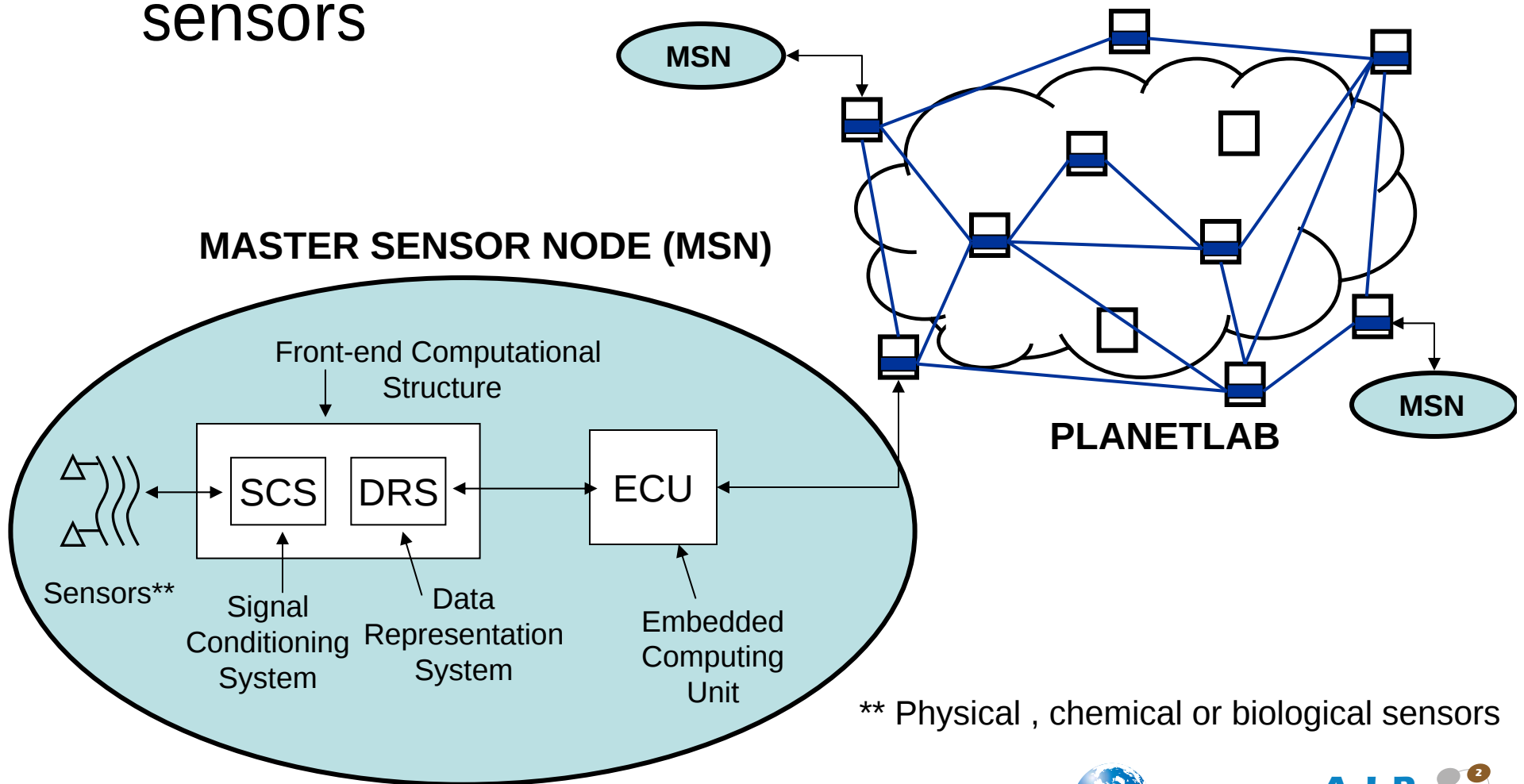


Implementing Different Signal Lengths



PLANETLAB INSTRUMENTATION DEVELOPMENT

- Connecting PlanetLab to environmental sensors



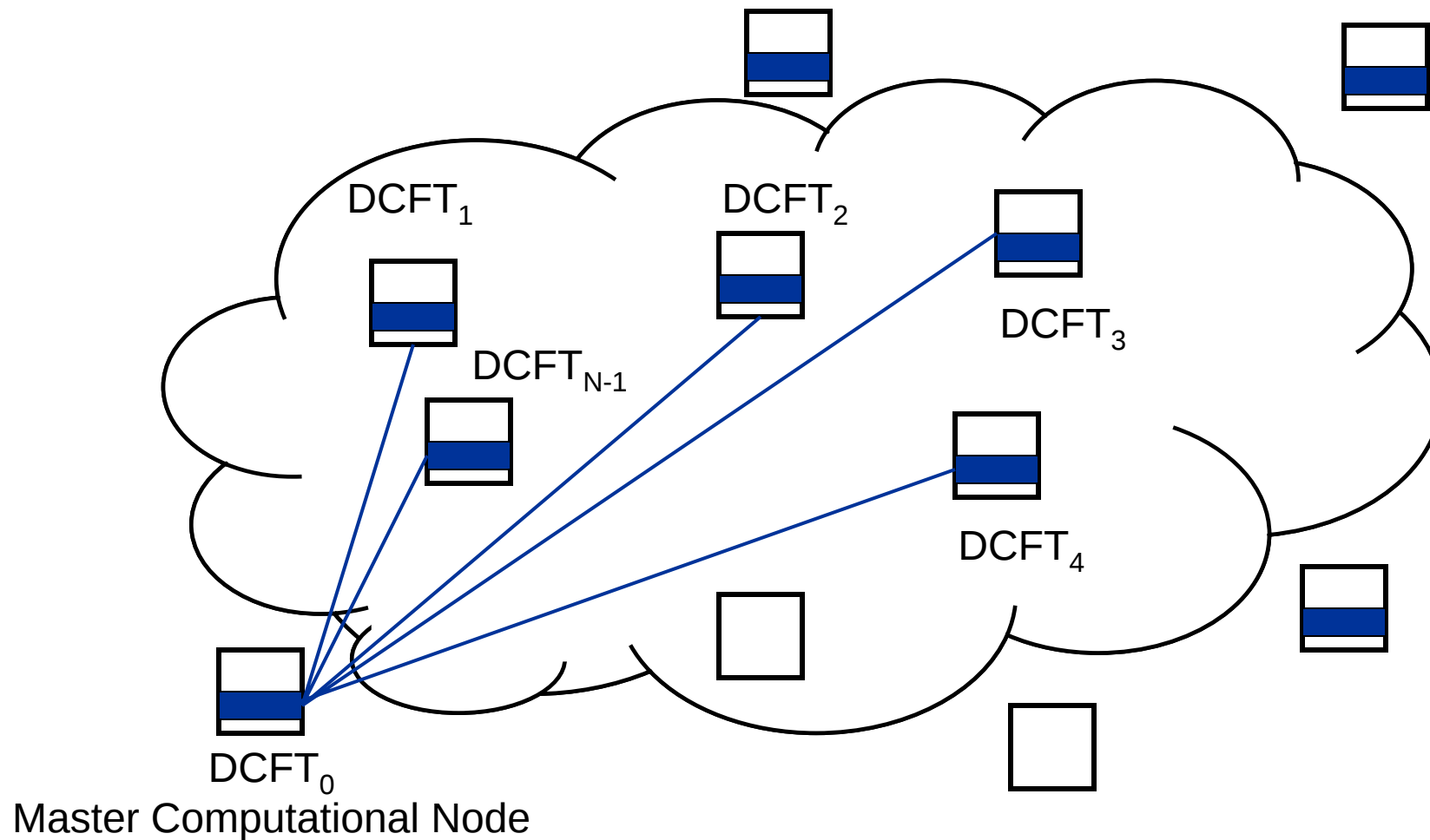
** Physical , chemical or biological sensors



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IMPLEMENTING DCFT IN PLANETLAB



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