



# Energy Collaboration

Oceanit and Referentia

Ian and Nelson

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# The Opportunity – Bowles of the Stimulus

- Over 10B in Federal grants for modernizing our Nation
  - Renewable Energies
  - Advanced IT
    - Smart Grid
    - Healthcare IT
    - Rural Broadband
    - Cyber Security
    - Public Safety Networks
- More funds distributed to/through States

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# Drivers

- Getting off of oil – not depending on Middle Eastern countries
- Stabilizing our Nation's power grid
- Cleaner environment
- Access to remote areas
- Improved Education
- Better Healthcare and Cures

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# Dual-use Positioning

- DoD key for dual-use positioning
- DoD faces mission critical challenges
- Challenges escalated after cold war
  - Asymmetric warfare
  - Social-cultural impacts
  - Energy impacts and security
  - Cyber threats
- Doing much, much more, with much, much less

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# Dual-use Positioning

- Oceanit
  - Wind situational awareness for UAVs
- Referentia
  - Data warehousing and integration of time-series sensor data
  - Cyber security and network enterprise solutions
- Critical to understand market – sooner than later

Addressing DoD problems can strategically position you for dual-use

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# Smart Grid

- Need to interact with consumers
  - Extend comms and networks
  - Protect comms and networks
- Need to integrate silo'd and proprietary data including sensor data
- Need environmental real-time situational awareness
  - Reduce impacts of Wind and PV alternative energy sources into existing grid
  - E.g., accurate wind prediction
    - Fusing Lidar wind characteristics with other wind-related environmental data

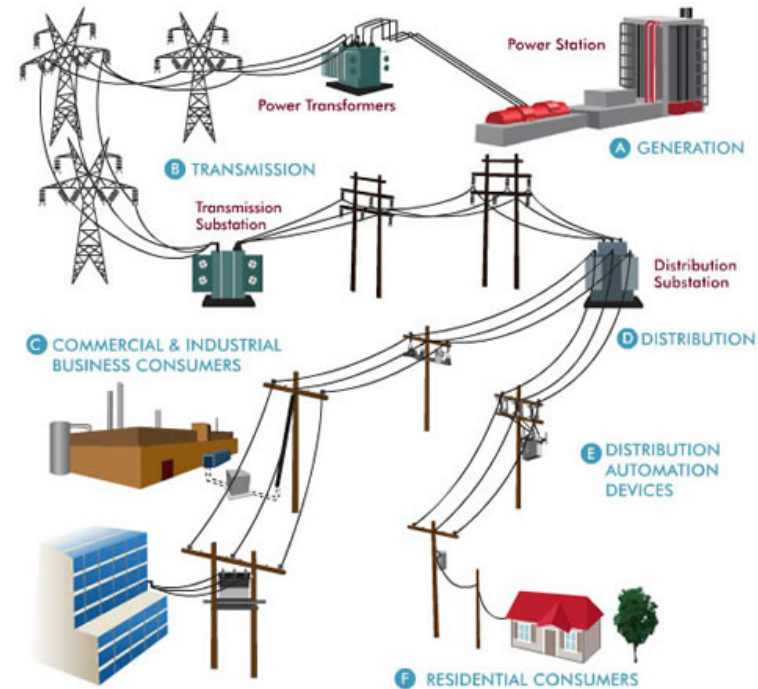


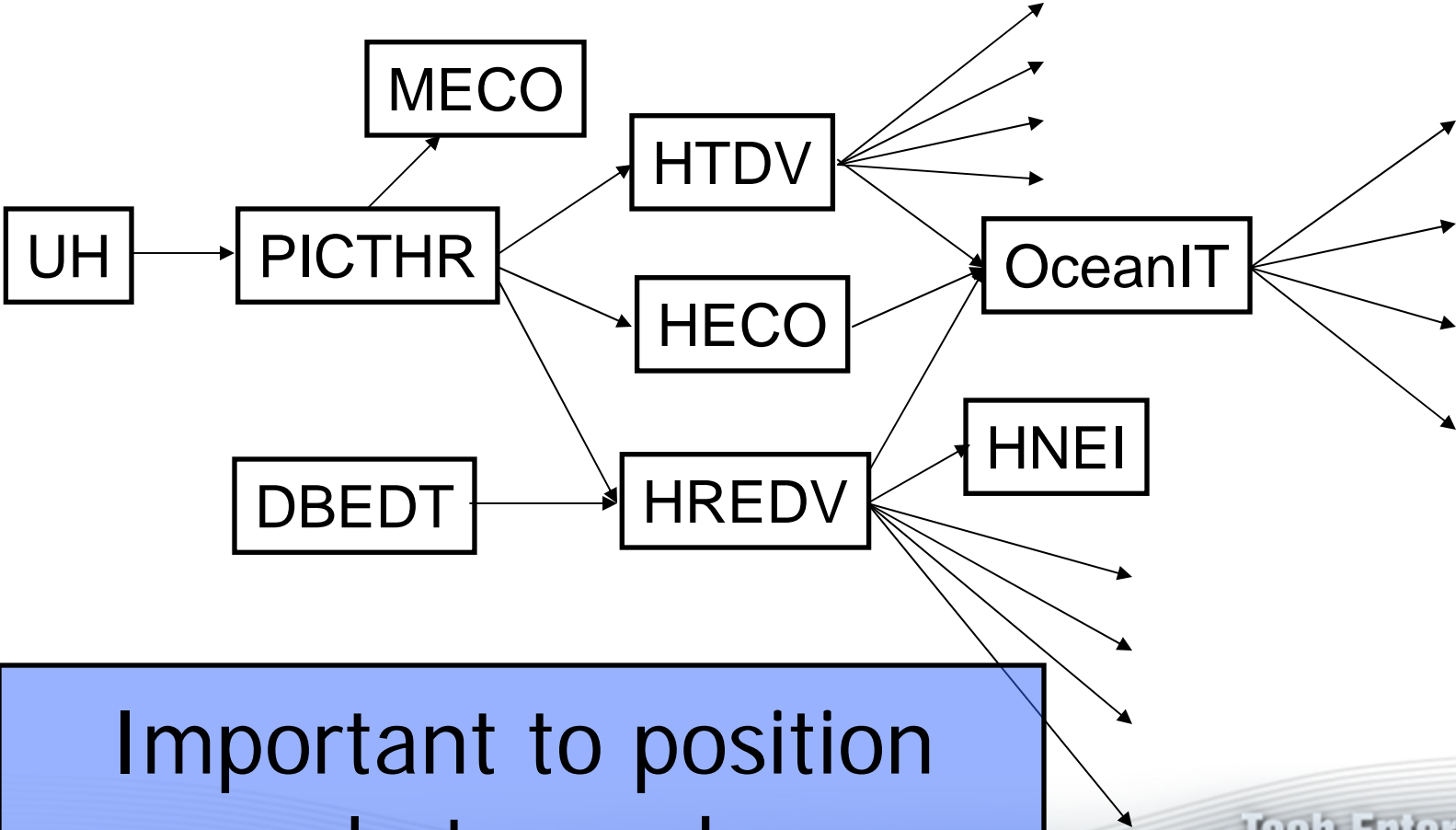
Photo courtesy of Oncor

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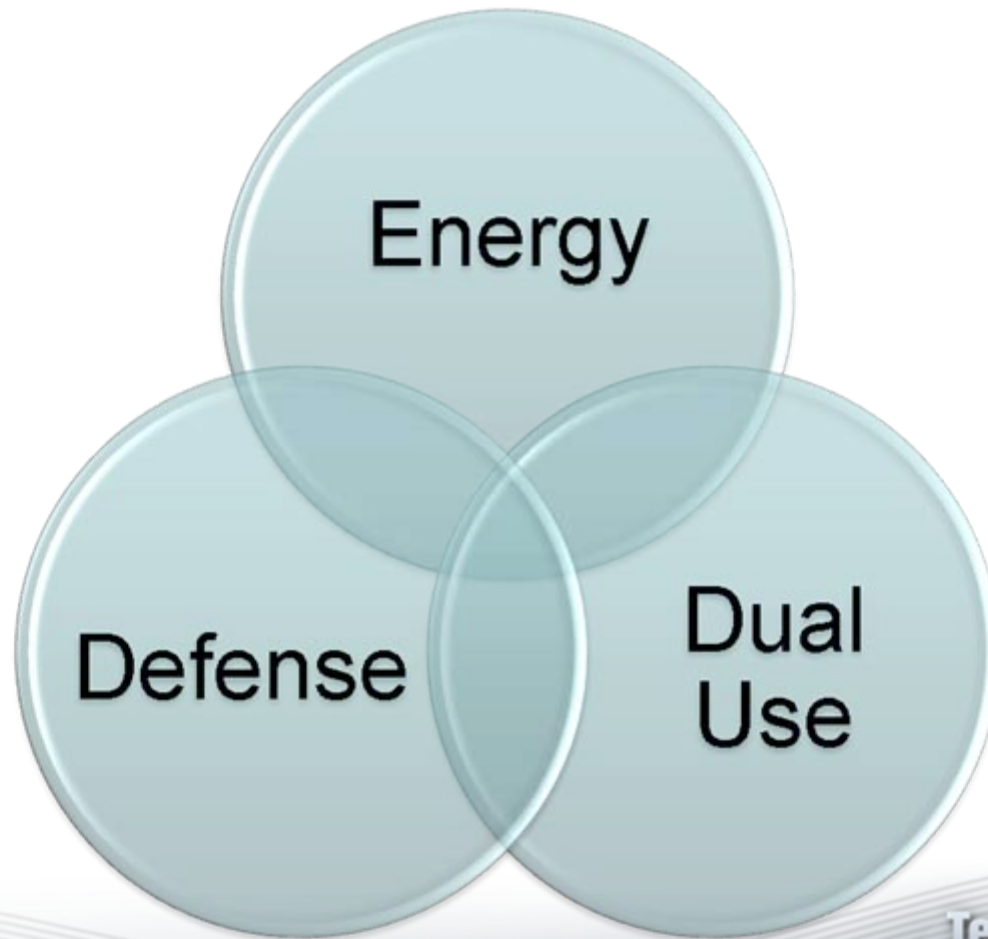
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# Social Marketing and Networking



Important to position  
what you do

# Opportunity - DoE “Smart Grid”



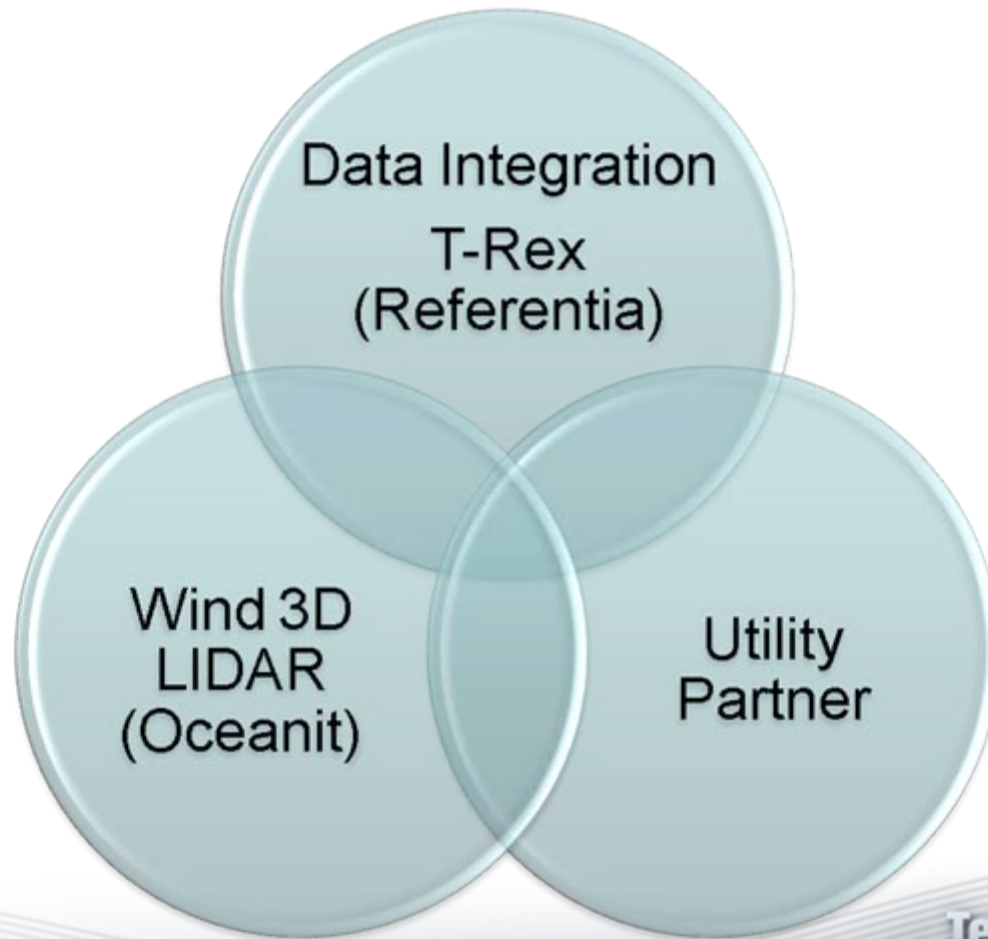
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# Team

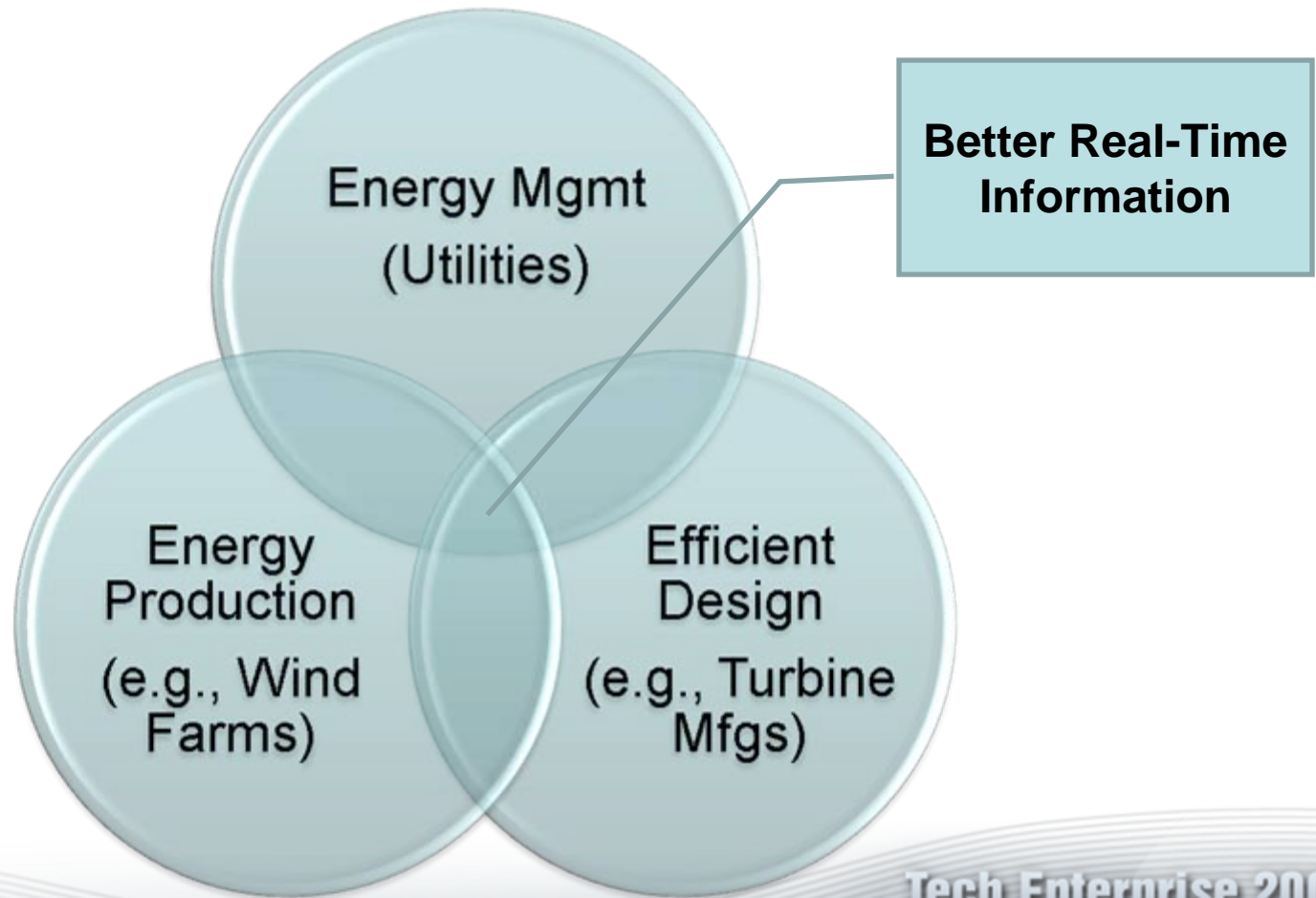


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# Pain



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# Collaboration Basics



- Why
- Who
- What
- Communication
- Concerns

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# Why Collaborate?



- Partners have different skill sets and or areas of interest but have a joint end goal ( $1 + 1 = 3$ )
- What will we do together that we can not do apart?
- Are we ready to partner?
  - Software or hardware?
  - Ready to share details (under an NDA)
  - Business models, i.e., how do you make money?
  - Time horizons – do we match?
  - Do I know my partner?
  - Start with a relatively low risk collaboration
- Bottomline: Does collaborating make sense?

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# Who – Stakeholders?

	Referentia	Concerns	Oceanit	Concerns
Executive	Nelson		Ian	
Programs	John		Chris	
Technical Leads	Mary		Chris	
Business Development	Sally		Russel	
Contracts and Legal	Sam		Judi	

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# What – Roles & Responsibilities?

(becomes basis for MOU)

	Referentia	Oceanit
<b>Why</b>	Provide actionable historical knowledge-base and distributed architecture for enhanced decision aid and prediction.	Improve viability/adoptability of wind produced energy into the utility grid
<b>Joint Project Mgrs</b>	Philippe Rolland	Chris Sullivan
<b>Customer Interface</b>	Lead	Support
<b>Technology</b>	T-Rex with wind data from Oceanit's Wind 3D	Wind 3D data streamed to T-Rex. Add cloud coverage mapping
<b>Team Members</b>	Matt Shawver (technical)	Frank Price (technical), Russel Cheng, 2 MBA interns (business)
<b>Proposal Development</b>	Lead	Support

# Schedule – 1 Page Game Plan

(becomes basis for MOU)

	Phase I	Phase II	Phase III
Stage	Concept demo	Base Smart Grid	Full Smart Grid
Concept/Why?			
Pains			
Overall Pain	<b>Align Expectations</b>		
Win Strategy			
Technology			
Competition			
Success Factors			
Risk Factors			
Projects			
Stakeholders			
Funding			
Perfect end result			

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# Communication Plan



- Talk frequently
- Talk frankly
- Talk on a scheduled basis
- Designate POCs
- Document it

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# Monitor - Concerns & Conflicts



- Be aware
- Ask the uncomfortable questions – see the elephant?
- Bring up issues before they become a crisis – avoid surprises

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# Thank You!

Referentia and Oceanit  
Nelson and Ian

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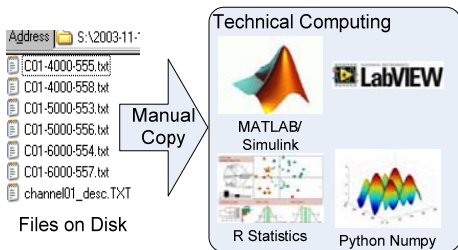
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# Timeseries: Rapid Exploration (T-REX)

*T-REX - Insight into complex systems through analysis of large volumes of disparate data.*

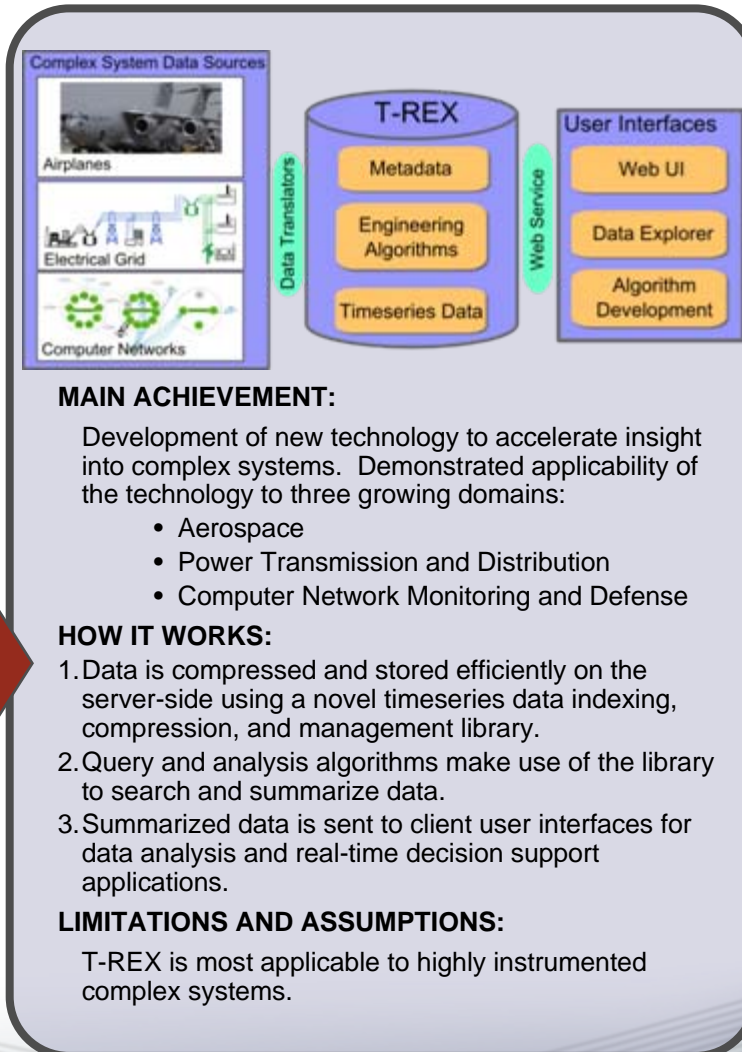
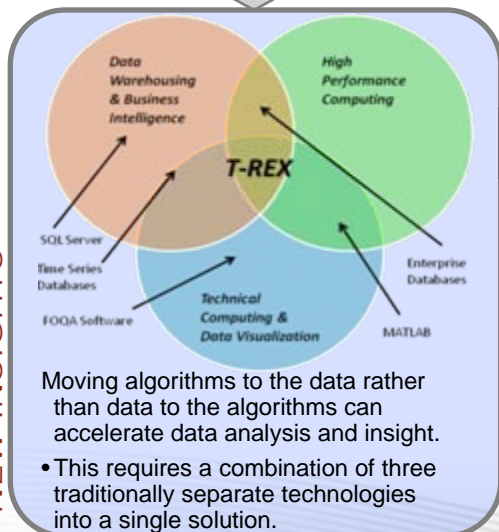
STATUS QUO



Traditional analysis of complex systems requires data copy from a file server or relational database to a local computer. This slows analysis and insight:

- Inefficient data storage
- Unnecessary data copies
- Requires custom software

NEW INSIGHTS



QUANTITATIVE IMPACT

Metric	Oracle	T-REX
Size on Disk	18,000 MB	155 MB
Size per Value	35 bytes	0.28 bytes
Size per Day	275 MB	2.3 MB
Read All Data (ordered)	Days	131 s

Benchmark results show that T-REX provides a significant advantage over the current state of the art data management and analysis solutions.

END-OF-PHASE GOAL

**Mature out-of-the-box software, with complete general purpose data management and analysis user interfaces and documentation.**

**Successful application of technology (installed and in-use) customer to one out of three target domain areas.**

**Opportunity growth and ongoing transition projects in other two areas.**

**T-REX provides high speed, efficient data management and analysis for effective planning and decision support**