



Delivering a Consistent Real-Time Natural Environment for the Navy's Fleet Battle Experiments

2004 SEDRIS Technology Conference

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Synthetic Natural Environment (SNE) Delivery



- ***Consistent SNE for all Federates in High Level Architecture (HLA) Federation***
- ***In-Stride Operational Model Data (Natural Operational Environment)***
 - ***Identical Tactical Environmental Data Services (TEDServices) Model Data Delivered to Live and Constructive Forces***
 - ***NITES II Tactical Decision Aid***
- ***Role of SEDRIS***



Fleet Battle Experiments (FBE's)



- ***Maritime Battle Center – Newport, RI***
 - ***Navy Fleet Battle Experimentation***
 - ***Joint Experimentation***
- ***Carried out in conjunction with the numbered Operational Command Elements***
 - ***FBE-K – 7th Fleet (8000 personnel)***
- ***Innovative Warfighting concepts in an at-sea operational environment***



FBE-K



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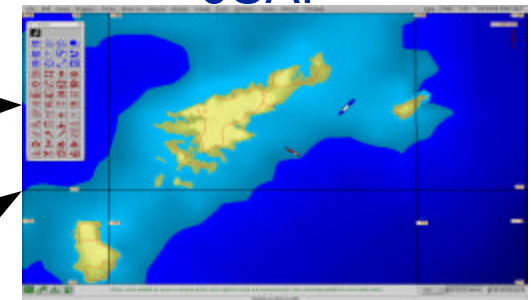
Environmental Impact on Simulation Scenario



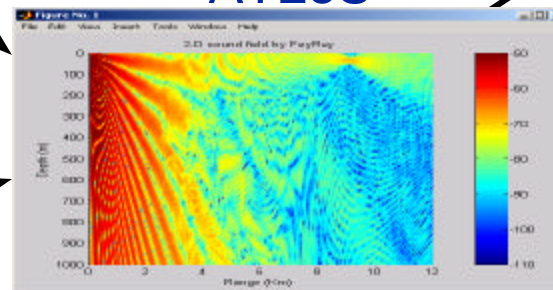
Ocean Surface



JSAF



ATLoS

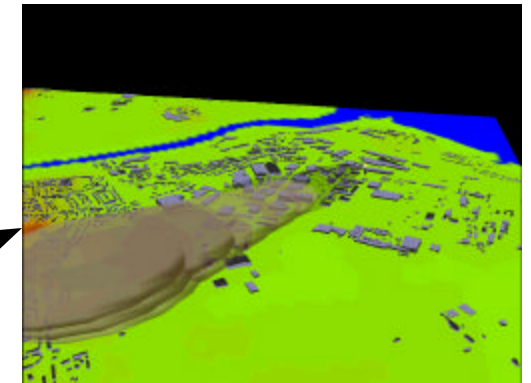


Ocean Volume

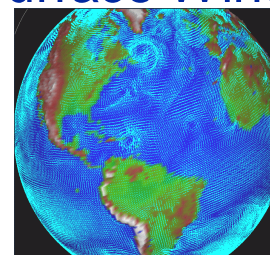


$SE = SL + ITF - TL - NL + DI - DT$

IMPACT

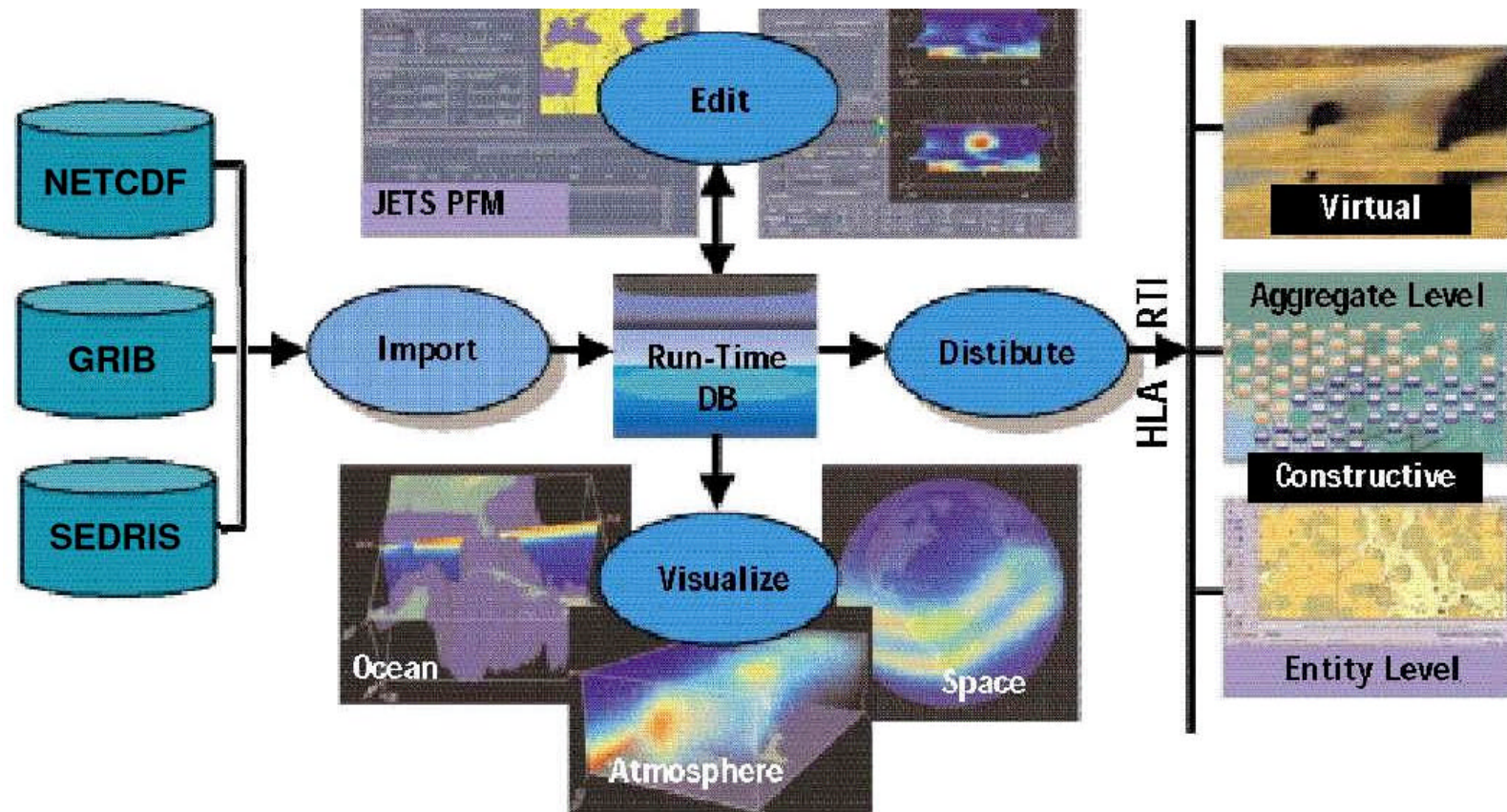


Surface Winds





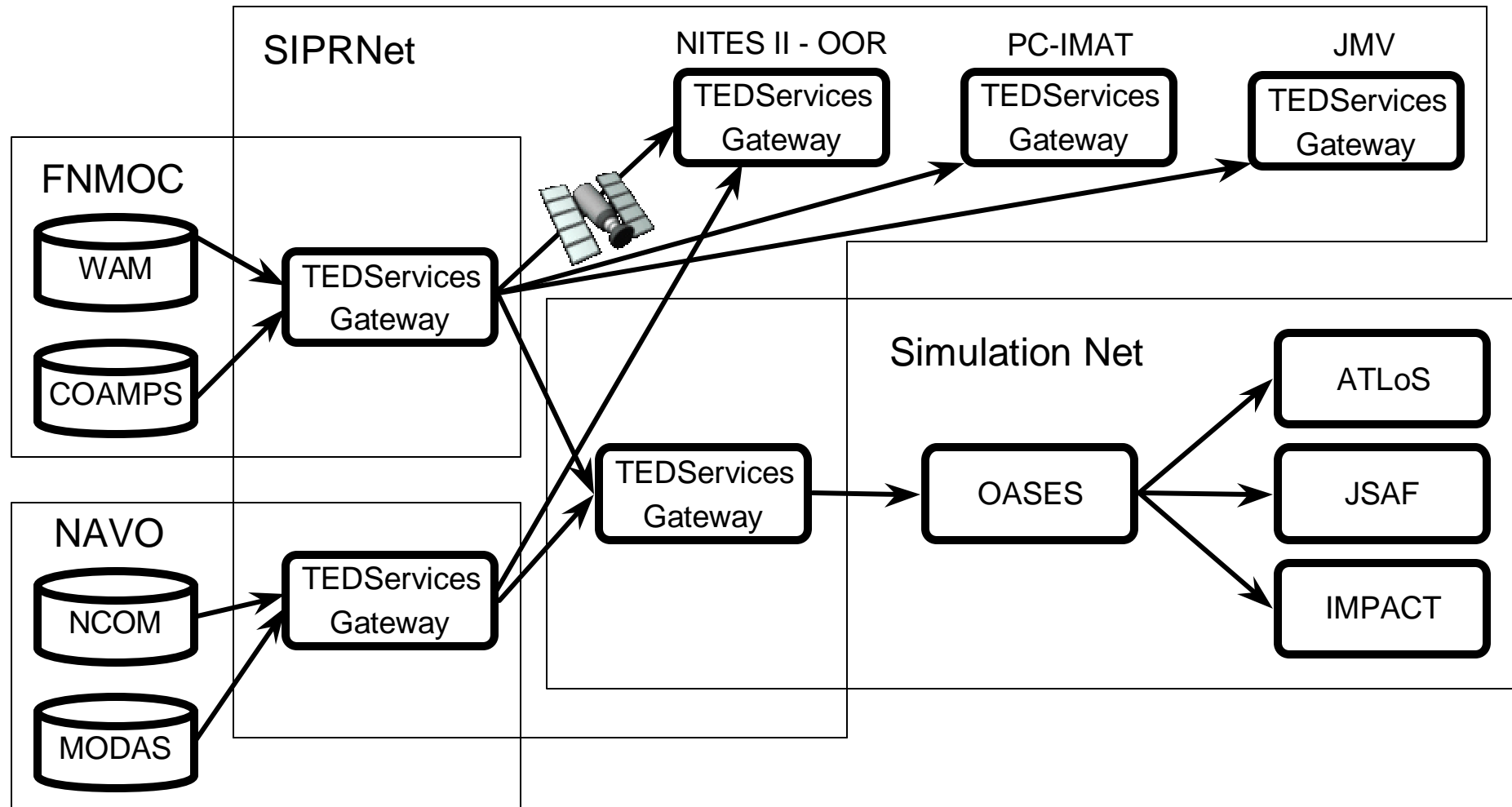
Ocean Atmosphere Space Environmental Services (OASES)



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In-Stride Operational Model Data



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Role of SEDRIS



- ***EDCS Semantics within OASES***
- ***Support for Ingestion of SEDRIS Transmittals***
 - ***Currently Supports SEDRIS 3.0.3***
- ***TEDServices can Provide Environmental Data as SEDRIS Transmittals***
- ***Availability of Environmental Data in SEDRIS Format from Master Environmental Library (MEL)***
- ***STL Inspection Tools***



EnviroFed Federation Object Model



```
(class Ocean_3D
  (class Water_Columnn
    (attribute EAC_Salinity best_effort receive HyperSpace)
    (attribute EAC_Sound_Speed_Water best_effort receive HyperSpace)
    (attribute EAC_Sea_Temperature best_effort receive HyperSpace)
    (attribute EAC_Current_U_Ocean best_effort receive HyperSpace)
    (attribute EAC_Current_V_Ocean best_effort receive HyperSpace)
    (attribute EAC_Current_W_Ocean best_effort receive HyperSpace)
    (class Water_Columnn_Curvilinear
      /* snip */
    )
    (class Water_Columnn_GDC
      /* snip */
    )
  )
)
```