DATA CENTER
Make sense of your data

David Brock, Founder and Director
Data Center
Massachusetts Institute of Technology
IMPLEMENTATION

Implementation and testing
IMPLEMENTATION

Data Translation
TRANSLATION

Protocol A
Protocol B
Protocol C
Protocol D

Router

Protocol A
Protocol B
Protocol C
Protocol D
- Multiple Protocols
- Data Transformation
- Data Fusion
- Performance
<tag tag="value">
  <tag>value</tag>
</tag>

<tag>
  <tag>value</tag>
  <tag>value</tag>
</tag>
Core Vocabulary

Nouns

detail 1, item 2, point 8 -- An isolated fact that is considered separately from the whole; several of the details are similar a point of information.
detail 2 -- Extended treatment of particulars; the essay contained too much detail.
detail 3 -- A crew of workers selected for a particular task; a detail was sent to remove the fallen trees.
detail 4, contingent 5 -- A temporary military unit; the peacekeeping force includes one British contingent.
detail 5, particular 5, item 5 -- A small part that can be considered separately from the whole; it was perfect in all details.

Verbs

detail 6 -- Assign to a specific task; The ambulances were detailed to the fire station.
detail 7 -- Provide details for.

New Definition for detail?
GMTI – GRAPH REDUCTION - SYNONYMS

<start.1_time.1>
<begin.1_time.1>
<initial.1_time.1>
<starting.1_time.1>
<creation.1_time.1>
<inception.1_time.1>
<launch.1_time.1>
<Patient>
    <Name>John Smith</Name>
    <Sex>male</Sex>
</Patient>

<PatientName>John Smith</PatientName>
<PatientSex>male</PatientSex>

<Patient>
    <PatientName>John Smith</PatientName>
    <PatientSex>male</PatientSex>
</Patient>
Orphan tags

GRAPH REDUCTION – NODE COLLAPSE
GRAPH REDUCTION – NODE EXPANSION

Redundant tags

Before:
- tag_1_tag_2
- tag_1_tag_3

After:
- tag_1
- tag_2
- tag_3

Value:
- value
- value
- value
<catalog>
  <store>Newbury Comics</store>
  <year>2005</year>
  <cd>
    <title>Empire Burlesque</title>
    <artist>Bob Dylan</artist>
    <country>USA</country>
    <company>Columbia</company>
    <price>10.90</price>
    <year>1985</year>
  </cd>
  <cd>
    <title>Hide Your Heart</title>
    <artist>Bonnie Tyler</artist>
    <country>UK</country>
    <company>CBS Records</company>
    <price>9.90</price>
    <year>1988</year>
  </cd>
</catalog>
GRAPH REDUCTION – LISTS AND TABLES
<BookOrder>
  <Date>Wednesday, May 17, 2003</Date>
  <Order-No>ECC420464</Order-No>
  <Buyer>
    <Name>John Smith</Name>
    <Org>IBM</Org>
    <Address>
      <Street>34 Westfield Road</Street>
      <City>Princeton</City>
      <State>NJ</State>
      <Zip>01710</Zip>
    </Address>
    <Phone>508-771-1928</Phone>
    <Email>John.Smith@ibm.com</Email>
  </Buyer>
  <MainOrder>
    <Order>
      <Title>SSN</Title>
      <Author>Tom Clancy</Author>
      <Qty>2</Qty>
      <Language>English</Language>
    </Order>
    <Order>
      <Title>Developing SGML DTDs</Title>
      <Author>Eve Maler</Author>
      <Qty>3</Qty>
      <Language>English</Language>
    </Order>
  </MainOrder>
</BookOrder>
IMPLEMENTATION

Data “Fusion”
IMPLEMENTATION

Location
EPC/RFID and Sensor networks require a more general description of location than is currently available.
M is a modular and flexible language that couples a **vocabulary** with a set of **rules** for forming messages.
Define **location** as a sequence of ‘triples,’ which consists of a **reference** object, **target** object and **relationship** between them.
Location 'triple’

Reference: Conveyor (with geometric description)

Relationship: x, y offset

Target: Box
MULTIPLE TRIPLES

- Conveyor
- Offset
- Box
- Location (x, y)
- Room ‘F007’
- Basement SCR Building