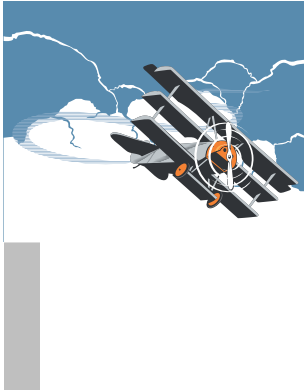




# ICT Trends in Aerospace

IBM®



## Agenda



**Infrastructure**



**Software**



**IBM Research**



**Aviation platforms as an ISR node**



**Simulation implications**



## Infrastructure



Flash storage - rugged for moving platforms





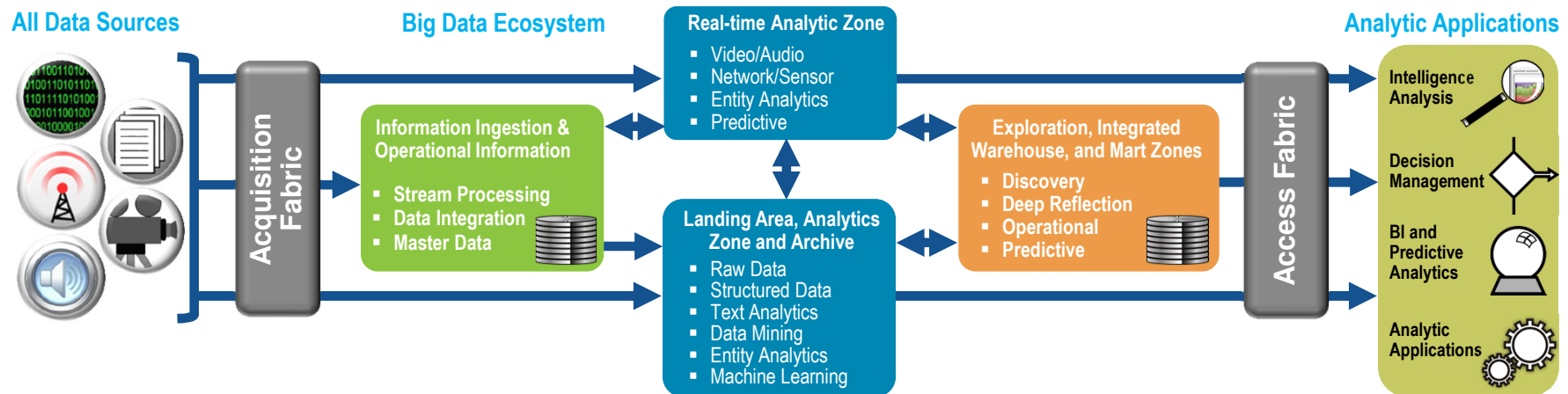
## Software trends 1 and 2



- **Data in motion** - large volumes of engineering data that are handled in real time (Streams)



- **Large scale file handling** - "big data" such as from sensors (Hadoop)

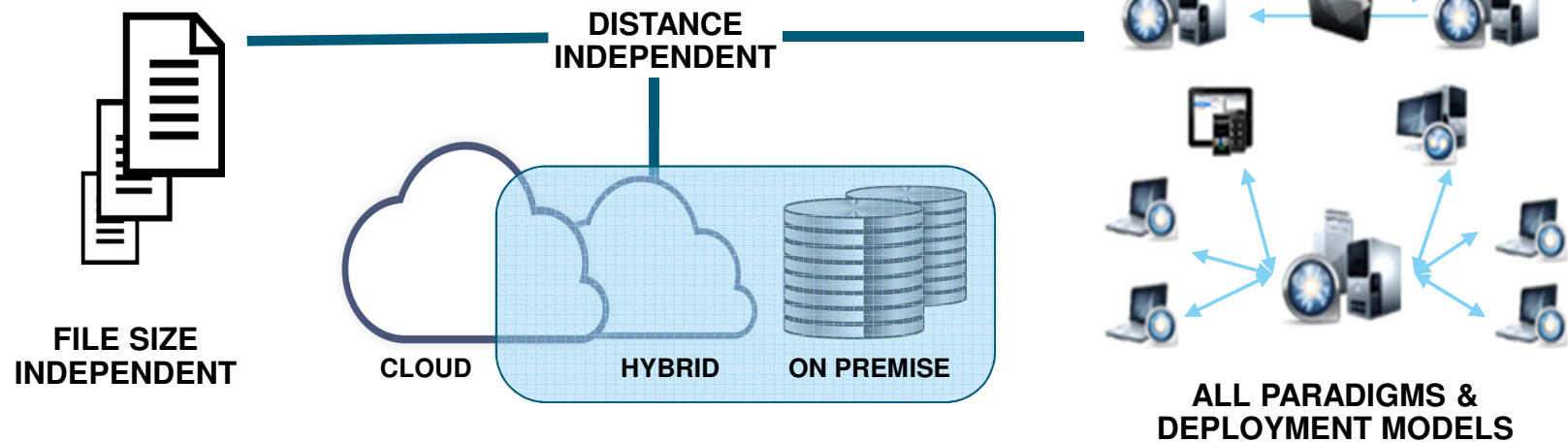




## Software trend 3



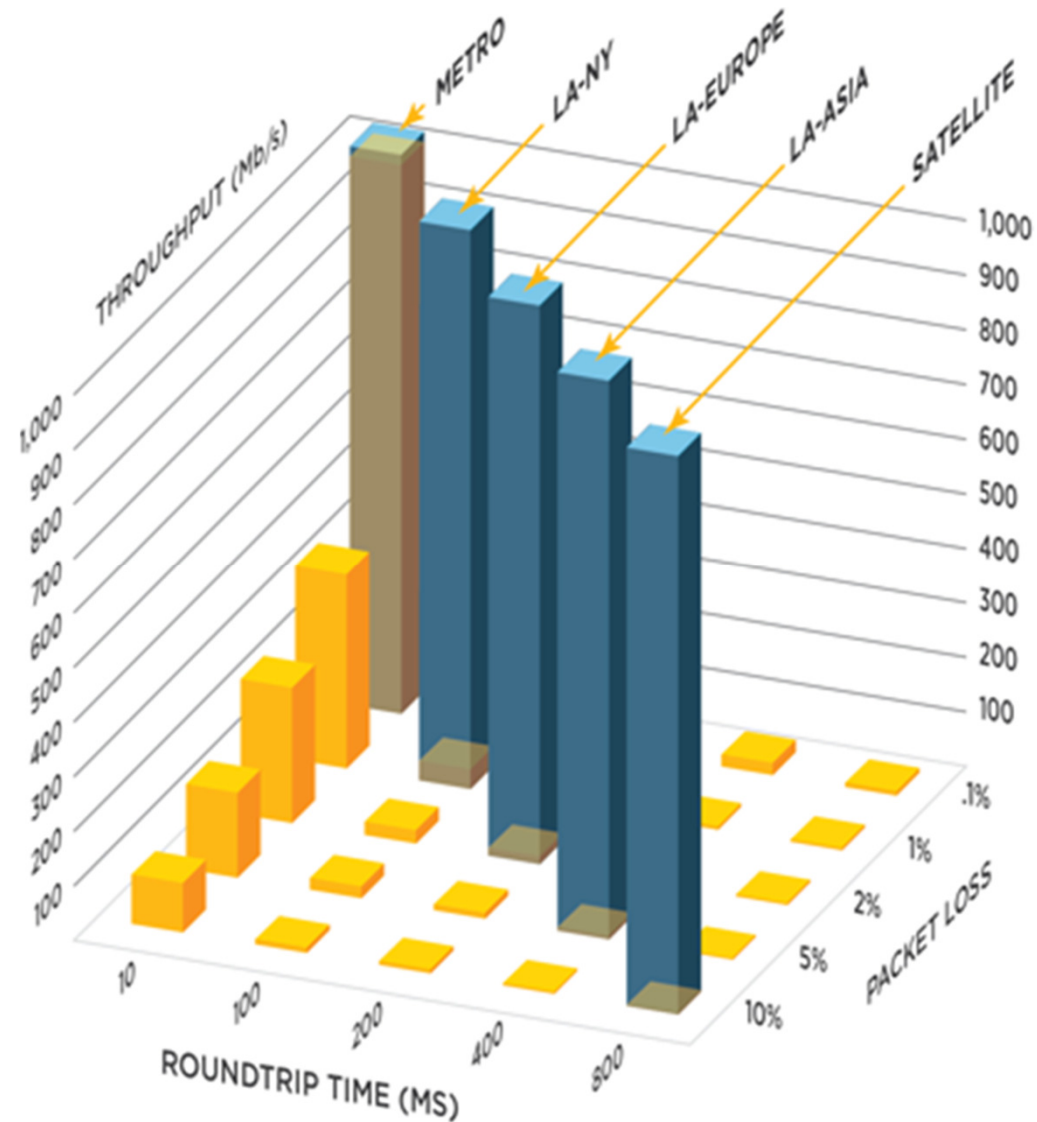
### Efficient file transfer (Aspera)





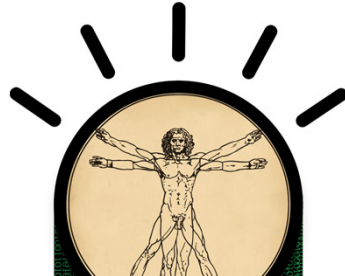
## Software

### - Performance of Aspera compared to FTP over TCP/IP





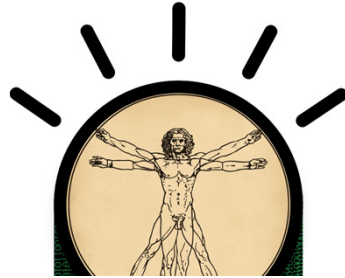
## IBM research topics



- Cognitive computing - Watson

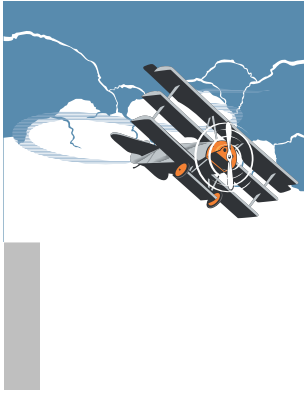


## IBM research topics

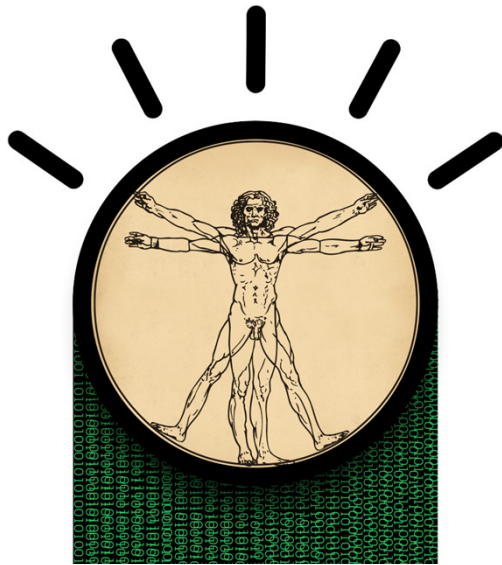


- Grand chip challenge - breaking the 7 nanometer barrier and alternative cpu materials





## IBM research topics



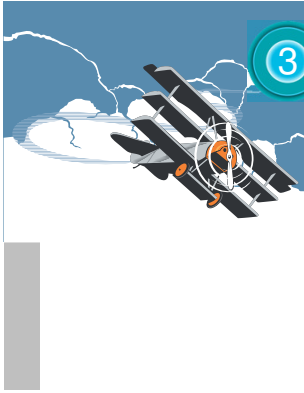
- Neural computing - developing a non-von Neumann architecture neurosynaptic chip.
- This “neuron-like” technology emulates the brain's computing efficiency, size and power usage.
- Neuromorphic chip called “TrueNorth”



## Some observations relating to the “ISR problem space”



- There is a growing profusion of sensor data
- The efficiency of moving data across networks is improving
- It is becoming practical to move the data to the analyst, reversing the historical trend of taking the analyst closer to the data and potentially in harms way



## Expected trends in the “ISR problem space”



- In the near term – we will move the data back from the front line to the analyst who will be in a safer location.
- In the longer term – we will move a “cognitive computing assistant” out to tactical edge.

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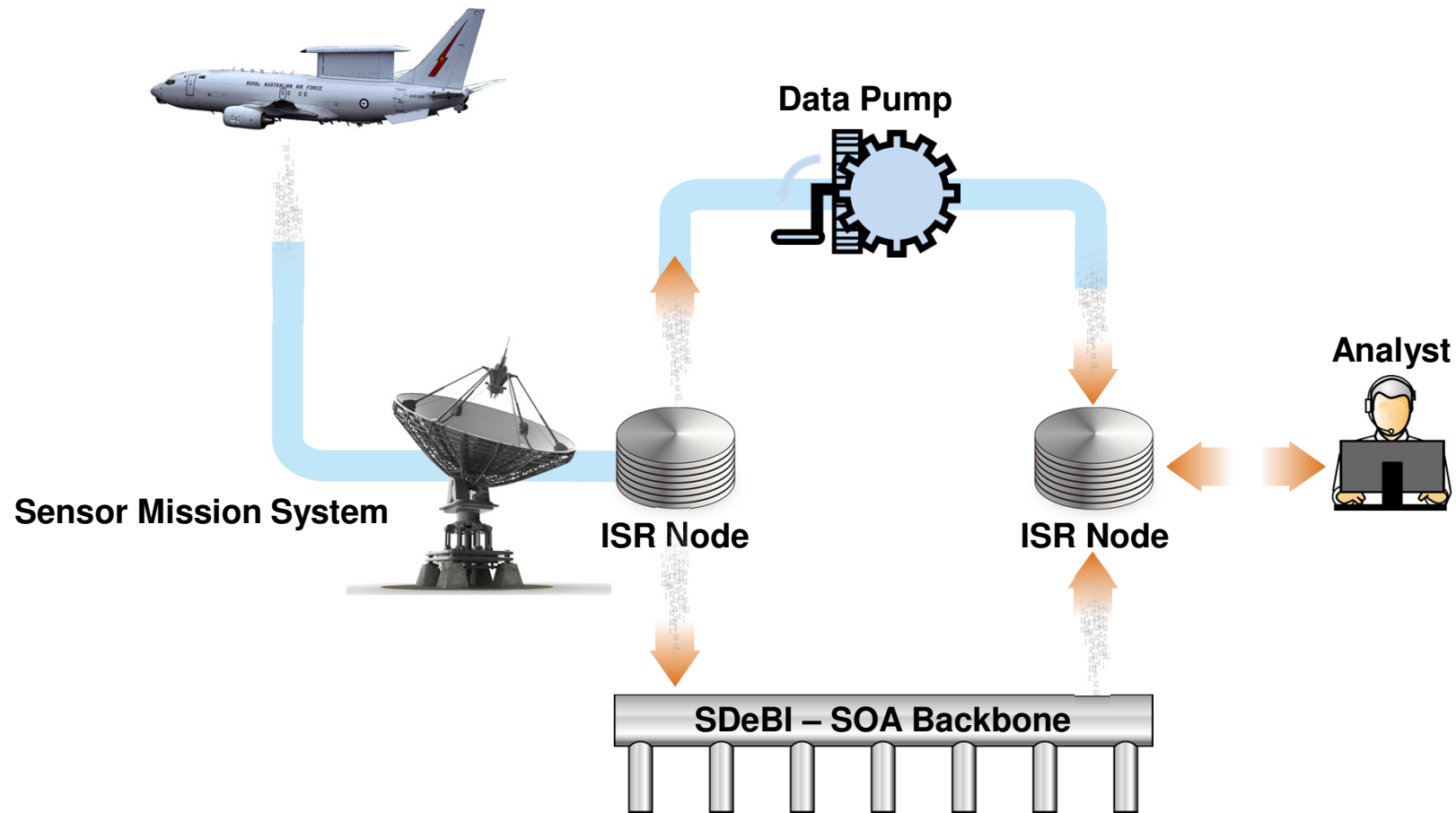
## Aviation platforms as an ISR node



- Aviation platforms are nodes in an overall ISR network
- Sensor profusion and therefore an exponential explosion of data
- The local platform needs sufficient computing power to make sense of what it sees
- Implications for the SOA backbone extended to the tactical edge



## Taking a designer's pen to ISR ...





## Simulation Implications



- The "digitisation" and "componentisation" of the battlespace architecture will enable simulation of each platform in an overall war game
- Modelling of platform behaviours in a digital world



## Questions and Discussion



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