



Building an Integrated Ground Architecture to Respond to Present Challenges

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INTEGRATED GROUND ENTERPRISE

- **Vision**
 - *To implement a fully integrated Intelligence Community ground architecture where information is virtual, assured, available on demand, and globally accessible to authorized users empowered with the tools and services necessary to generate tailored, timely, trusted and actionable intelligence products.*
- **Mission**
 - *To develop, deliver, and sustain a responsive, secure, interoperable, and integrated ground architecture while collaboratively providing timely, value-added, trusted information to users worldwide through innovative solutions.*



THE 1ST DECADE OF THE 21ST CENTURY

- **The speed of change is phenomenal**
 - In 2000 17 billion SMS messages were sent, in 2004 500 billion
 - In 1995 18,000 web sites, in 2007 106,875,138
 - In 1998 there were 0 Blackberries, in 2007 8,000,000
- **Space can provide a great asymmetrical advantage**
 - But the global economy and advances in space capabilities worldwide are leveling the playing field
- **We must have**
 - Speed (of thought as well as action)
 - Agility (no more stovepipes)
 - Scale (e.g. must be able to handle the torrent of text messages per day)



Unpredictable Growth in Mobile Communications



LIVING IN EXPONENTIAL TIMES

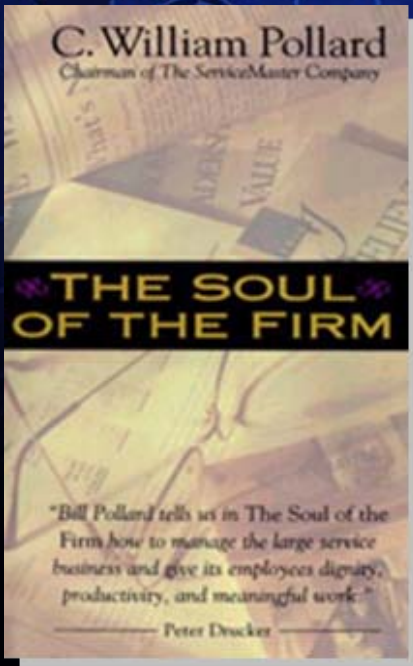
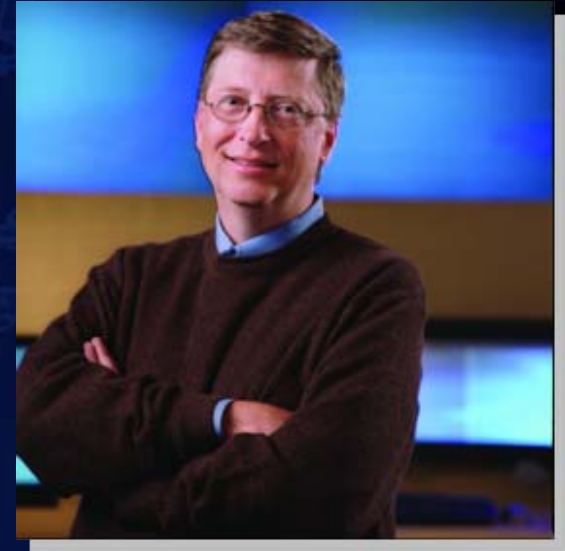
- U.S. is 20th in the world in broadband internet penetration
 - Just behind Luxembourg
- There are over 110 million MySpace users and 300,000 new users per day
- Over 2.7 billion Google searches each month
- Number of daily text messages exceeds the population of the planet
- 3rd generation fiber tested to 10 trillion bits/second on one fiber line
 - Equivalent to 1,900 CDs or 150 million phone calls every second
- 47 million laptops shipped worldwide in 2005

IT Revolution has fundamentally changed everything we do



“Never before in history has innovation offered promise of so much to so many in so short a time.”

- Bill Gates



“Learning and innovation go hand in hand. The arrogance of success is to think that what you did yesterday will be sufficient for tomorrow.”

- William Pollard



(U) CUSTOMER NEEDS: ACCESS

Need for Easy Access

- Problem: Users require relevant data and information that is readily available. Common, user-friendly interfaces to obtain, understand, and use intelligence—regardless of its source or type—is critical to operational success
- Solution: Post all information products and services for easy access through a single portal to authorized users

Desired Outcome: Users can access data any time, from anywhere



CUSTOMER NEEDS: CONTENT

Need for Better Content

- Problem: Users demand improved intelligence content, such as better geolocation, improved radiometric quality, and integrated data sources
- Solution: Improve the information derived from individual data types and fuse products from various collectors to provide a large number of new products and services

Desired Outcome: Users receive new types of information products and services to generate actionable intelligence



CUSTOMER NEEDS: TIMELINESS

Need for More Timely Delivery

- Problem: Users demand the information they want -- when they want it -- and have little patience for delays
- Solution: Emphasize real-time availability of all products and services

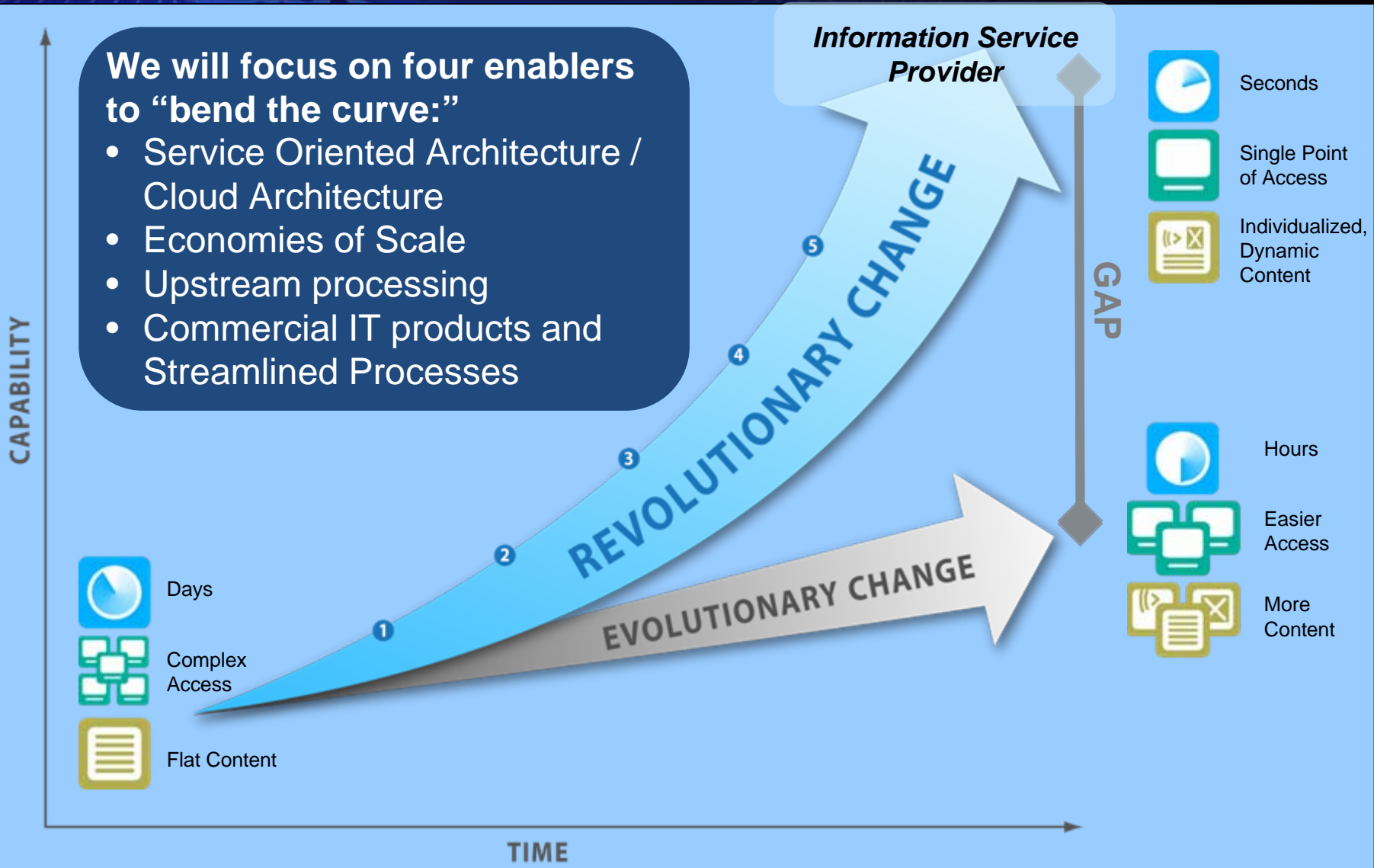
Desired Outcome: Users get the information they need within their timelines



LINKING VISION TO PRODUCTS AND SERVICES

We will focus on four enablers to “bend the curve:”

- Service Oriented Architecture / Cloud Architecture
- Economies of Scale
- Upstream processing
- Commercial IT products and Streamlined Processes





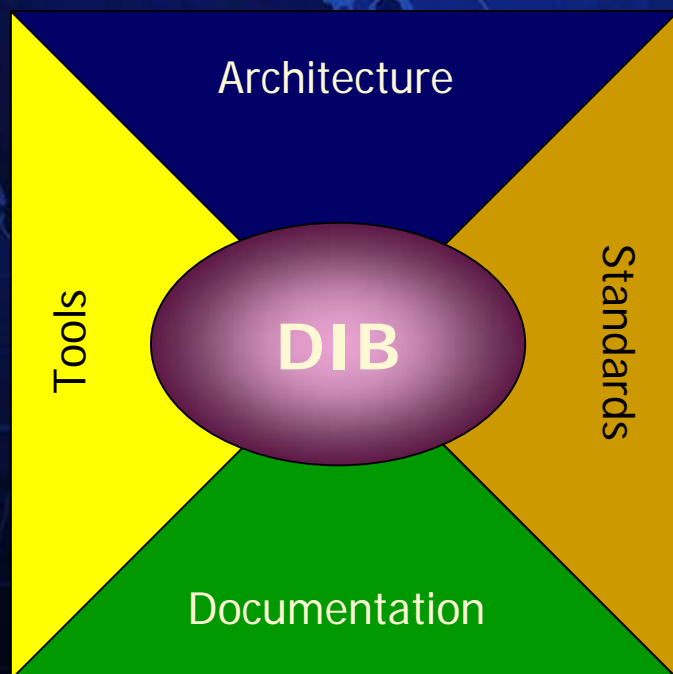
SOA

- ***Open Standards.*** Our ground architecture will evolve away from customized solutions aimed at solving specific problems; we will adopt commercial open standards into our acquisition processes.
- ***Challenge: Interfacing with legacy systems.*** Our Ground SOA Framework will use adapters to convert legacy Application Program Interfaces (API) to SOA-compatible formats.

Adoption of a SOA will allow for a persistent architecture where developers can bring content to the Intelligence, Surveillance and Reconnaissance (ISR) enterprise



IMPLEMENTING A SOA/CLOUD ARCHITECTURE COMPATIBLE WITH THE DCGS



- **DCGS Integration Backbone (DIB)**
- **Governance**
- **Common core services, infrastructure**
- **Re-use of Services**
- **Single query access to multi-INT**
- **Delivery of unique, net-enabled, value-added IC services**
- **Ubiquitous, common-standard visualization interface**
- **“Discoverable” data and services**
- **Global Situational Awareness**
- **Rapid acquisition and transition**
- **Use of “live/real” data for testing**



UPSTREAM PROCESSING

- Integrate upstream overhead SIGINT and GEOINT processing
- Integrate tactical SIGINT data with overhead SIGINT
- Automate new upstream processing and fusion procedures
- Assist users to take full advantage of the fused upstream data products
- Provide analysts tools needed to convert manual exploitation into semi-automatic procedures
- Develop a process to support incremental delivery of upstream ground capabilities and the discovery process that is intrinsic in spiral development
- Employ common baseline of signal and data processing components that can be reused in upstream SIGINT and GEOINT applications
- Define standards to publish metadata to capture the result of GEOINT and SIGINT upstream processing and analysis
- Enable the exchange of GEOINT and SIGINT upstream signals by defining upstream signals data interfaces

Take full advantage of commercial and government advances in automated target recognition and upstream processing to deliver information products and services in near real-time



CALL TO ACTION

History does not crawl, it jumps

Implications for the IC



Understand our challenges

Convert these challenges into great opportunities

Desired State

An Intelligence Community enterprise that operates as efficiently as the best commercial IT and knowledge service companies enabling authorized users to receive, task and query trusted information on-demand to improve the speed and execution of decisions from anywhere in the world.