

ICT Strategies that Stretch Scarce \$\$\$

3rd Oil & Gas ICT Summit Middle East 2009

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Innovative Leadership

This is an unusual period in history when the whole closely-coupled political-economic-social systems are experiencing severe turbulence! What an exhilarating challenge! Do you sense the adrenalin rising? Can CIOs rise to the occasion by discovering innovative leadership approaches to take organizations from recession to recovery? What can ICT contribute to this discussion?

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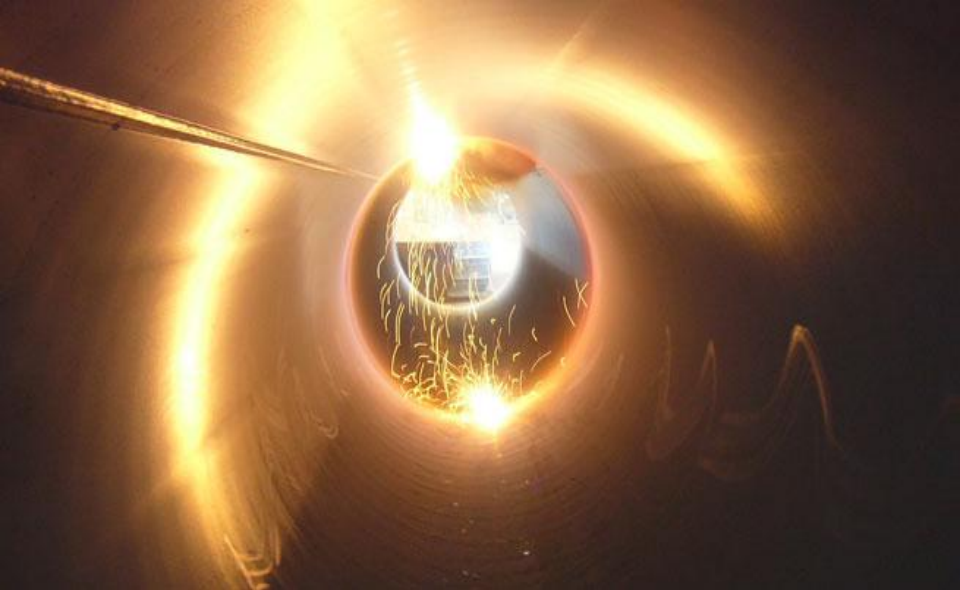
Can we Measure Up to the Expectations of our Stakeholders

Our burgeoning young population, the people we serve, the challenge of global warming leading to shrinking natural resources, legislators, regulators, the global community, our shareholders, our employees – all look to information and communications technologies for continued growth and sustenance

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ICT Strategies that Stretch Scarce \$\$\$

In a tumbling economy, decision makers can be paralyzed by fear and vision-free when it comes to addressing their investment portfolios. Shrinking budgets. Competing priorities. Schedule risk. It is easy in a turbulent time to keep your head down, focus on putting out one fire at a time, and hope things get better. But this is actually a great time for you to harness innovative approaches in ICT to contribute to optimizing shrinking project portfolios, help you reduce risk, boost the productivity of your existing organization, and cut development costs. There are many techniques that can be leveraged, bold approaches that make good business sense and yield measureable results. Agile, mashups, Green IT initiatives & DWDM are good examples.

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Agile Strategies to Stretch Scarce \$\$\$

A-gil-i-ty Quickness, lightness, and ease of movement;
nimbleness

Agility is the ability to create and respond to change in order to profit in a turbulent business environment

Agility is reprioritizing for maneuverability because of shifting requirements, technology, and knowledge

Agility is a very fast response to changes in customer requirements through intensive customer interaction

Agility is the use of adaptability and evolutionary delivery to promote rapid customer responsiveness

Agility is a better way of developing products using collaboration, teamwork, iterations, and flexibility

What Do the Figures Say

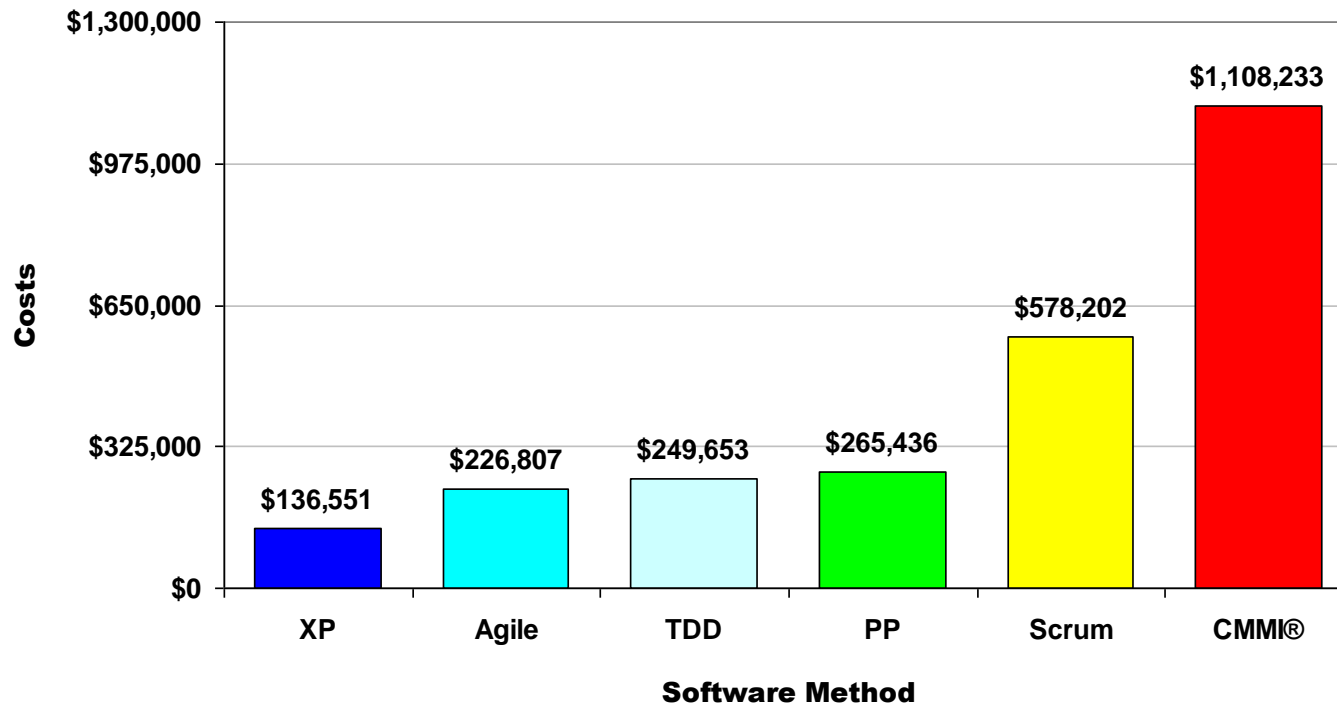
Cost Reductions of Agile Methods

Year	Organization	Author	Size	Productivity	Quality	Cost
2003	Shine	Johnson	131	93%	88%	49%
2006	Agile Journal	Barnett	400	45%	43%	23%
2007	Microsoft	Begel, et al.	492	14%	32%	16%
2007	UMUC	Rico, et al.	250	81%	80%	75%
2008	AmbySoft	Ambler	642	82%	72%	72%
2008	IT Agile	Wolf, et al.	207	78%	74%	72%
2008	Version One	Hanscom	3,061	74%	68%	38%
Average				67%	65%	49%

Rico, D. F. (2008). *What is the return-on-investment of agile methods?* Retrieved February 3, 2009, from <http://davidfrico.com/rico08a.pdf>

Comparative Cost Advantage of Agile Methods

XP costs 8X less than traditional methods
Scrum costs 2X less than traditional methods
Agile methods cost 5X less than traditional methods



Rico, D. F., Sayani, H. H., & Sone, S. (2009). *The business value of agile software methods*. Ft. Lauderdale, FL: J. Ross Publishing.

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Manifesto for Agile Software Development

We are uncovering better ways of developing software by doing it and helping others do it.

Through this work we have come to value:

Individuals and interactions	over	processes and tools
Working software	over	comprehensive documentation
Customer collaboration	over	contract negotiation
Responding to change	over	following a plan

That is, while there is value in the items on the right, we value the items on the left more.

Rico, D. F., Sayani, H. H., & Sone, S. (2009). *The business value of agile software methods*. Ft. Lauderdale, FL: J. Ross Publishing.

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Principles behind the Agile Manifesto - I

We follow these principles:

Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.

Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.

Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.

Business people and developers must work together daily throughout the project.

Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.

The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.

Rico, D. F., Sayani, H. H., & Sone, S. (2009). *The business value of agile software methods*. Ft. Lauderdale, FL: J. Ross Publishing.

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Principles behind the Agile Manifesto - II

We follow these principles:

- Working software is the primary measure of progress.
- Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.
- Continuous attention to technical excellence and good design enhances agility.
- Simplicity--the art of maximizing the amount of work not done--is essential.
- The best architectures, requirements, and designs emerge from self-organizing teams.
- At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.

Rico, D. F., Sayani, H. H., & Sone, S. (2009). *The business value of agile software methods*. Ft. Lauderdale, FL: J. Ross Publishing.

Principles behind the Agile Manifesto - III

We follow these principles:

- lean systems thinking is focused on 'value' and results. That is, upon the 'ends'; the desired outcome.
- Agile methods try to follow the principle of understanding customer value explicitly. This is exemplified by the Scrum, Flowchain & Kanban project management methods, which put the 'Product Owner' centre stage with respect to defining and prioritising the work-products to be delivered incrementally.
- The intention being to deliver stepwise results to the customer/user, with the highest value first. Without such an understanding, effective delivery of value becomes a matter of chance.

Rico, D. F., Sayani, H. H., & Sone, S. (2009). *The business value of agile software methods*. Ft. Lauderdale, FL: J. Ross Publishing

Mashups Strategies to Stretch Scarce \$\$\$

An **enterprise mashup**, also often called a **business mashup**, is an application that combines data from multiple internal and public sources, and publishes the results to enterprise portals, application development tools, or as a service in a service-oriented architecture.

Enterprise mashups must also meet enterprise application requirements for security, governance, monitoring, and availability.

Why Should You Mashup 1

Mashups allow you to build applications that meet business users' immediate needs – faster and in many cases better than before. Here are a few reasons why you should mashup:

Access both internal and external information faster. Mashups access – and combine – data faster than almost any other method, avoiding complex APIs and middleware and leveraging information that is easy to access. For certain business scenarios, where speed is critical, mashups are your fastest way to get to critical business information.

Make better business decisions. Mashups give business users the ability to assemble their own 'situational applications' in response to ever-changing business requirements. Accurate, timely information leads to better business decisions.

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Why Should You Mashup 2

Combine your business data in new ways. Mashups are famous for their ability to integrate different data sources – corporate data from your current systems mashed up with external data, all provided to the user in a browser for efficiency and speed.

Enterprise mashups enable non-technical users to consume potentially previously untouched data sources; create a new merged piece of information; customize (or filter) that new information as needed, perhaps even collaborate with other users by sharing the results, with the confidence that they are operating within the business requirements of security, reliability and governance.

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How Do Mashups Work

Mashups are like other integration or development technologies - but they are much lighter-weight and leverage the vast amount of services available for consumption. Fundamentally, mashups have three "tiers" of architecture as follows:

Presentation: Mashups are almost always presented visually, in portals or portal-like applications. Portals of course come from major technology vendors (IBM, Oracle, Microsoft, SAP) or next-generation portal platforms.

Mashup Infrastructure: This broad category includes technology for accessing, assembling, and processing mashups, as well as ultimately serving them to applications. An example is the JackBe Presto® .

Information Sources: Virtually anything that is a 'service' can be an information source for a mashup. This is one of the great powers of mashups. This includes internal databases, flat files, Java objects, Web Services and REST and external RSS feeds.

How Are Mashups Different

Mashups have three unique characteristics that separate them from other approaches:

User-driven - Mashups are executed for the user, not the by black-box back-end integration systems such as ESB, BPM, BPEL, etc. In this sense, a mashup must be completed by the users themselves. Without this guiding principle, we are merely sending the users back to IT for more development.

Bite-Size - Think of a user taking data from multiple sources and copying it into Excel. While these workers are really good at knowing how to combine data, they are often frustrated with the time and effort it takes to accomplish this manual feat. These users typically deal with small amounts of knowledge-oriented information as opposed to IT-managed applications that typically deal with large amounts of transactional information. By creating mashups, users are performing micro-integrations.

Web-accessible - Mashups are built upon data that could reasonably be displayed quickly in a web browser or, more precisely, data that doesn't require too much manipulation for the user to make sense of it. Standards-based interface / communication technologies such as WSDL, REST and RSS can help make this possible. .

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DWDM Strategies to Stretch Scarce \$\$\$

Alternatives to Introduce Additional Network Capacity

- **Lay more fiber**
 - expensive, time delay, more regenerators needed per fiber pair
- **Increase the TDM Line Rate (more time slots hence more bits/ second)**
 - expensive, increase from 2.5 to 10 G ... only a factor of 4 times
 - Higher bit rates require more frequent signal regeneration
- **Introduce DWDM**
 - A technology which allows network operators to carry more information over existing optical fiber networks by combining multiple optical signals for transmission over the same optical fiber

DWDM Strategies to Stretch Scarce \$\$\$

Benefits of DWDM

- **Allows fast expansion of capacity on existing routes**
 - 32 Channels @ 10 Gbit/s
 - 320 Gbit/s on a single fibre pair (today Max. 10 G with SDH)
- **Longer Transmission Distances before Regeneration**
 - 80km with SDH, 600 km with DWDM
- **Saves time & cost of laying new fibres**
 - Reduces equipment mountains at regenerator sites & associated build, operation & maintenance costs
- **Higher Granularity protection switching**
- **Allows multiple clients to be carried directly and in parallel on the same fibre**

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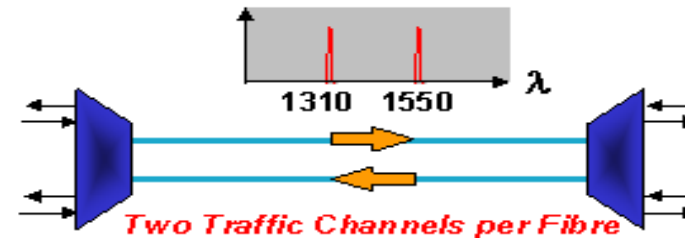
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DWDM Strategies to Stretch Scarce \$\$\$

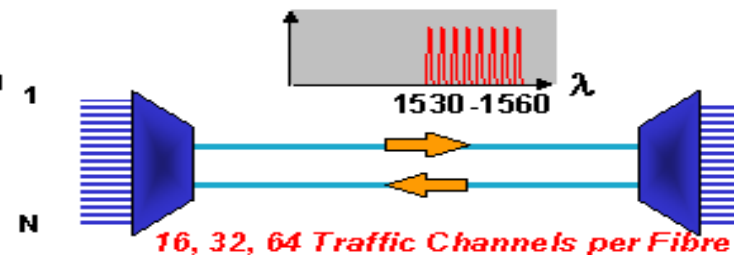
WDM vs DWDM

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Yesterday: WDM
Wavelength Division
Multiplex



Today: DWDM
Dense Wavelength Division
Multiplex

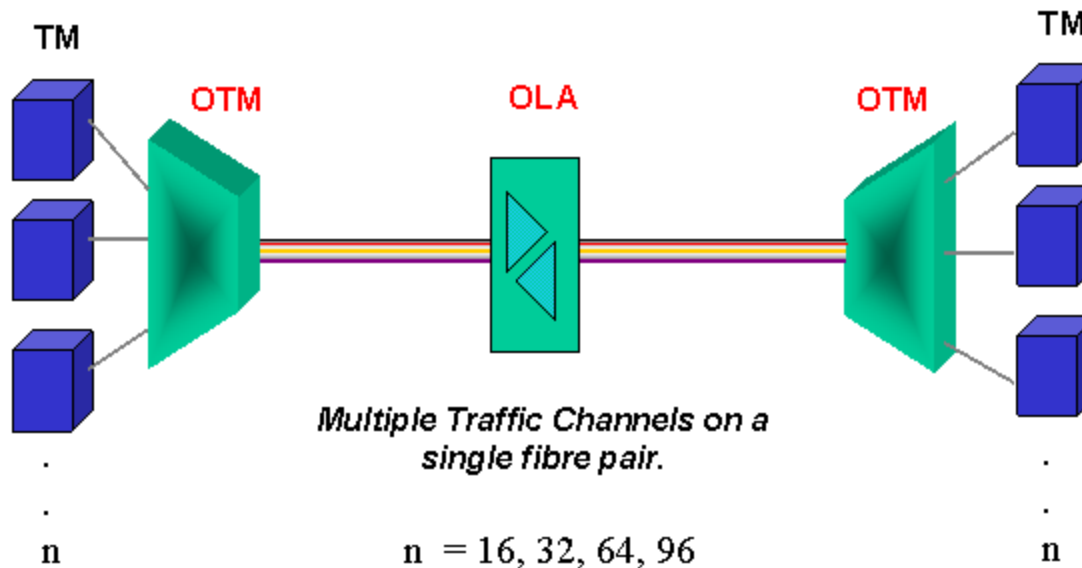


DWDM Strategies to Stretch Scarce \$\$\$

DWDM Transmission

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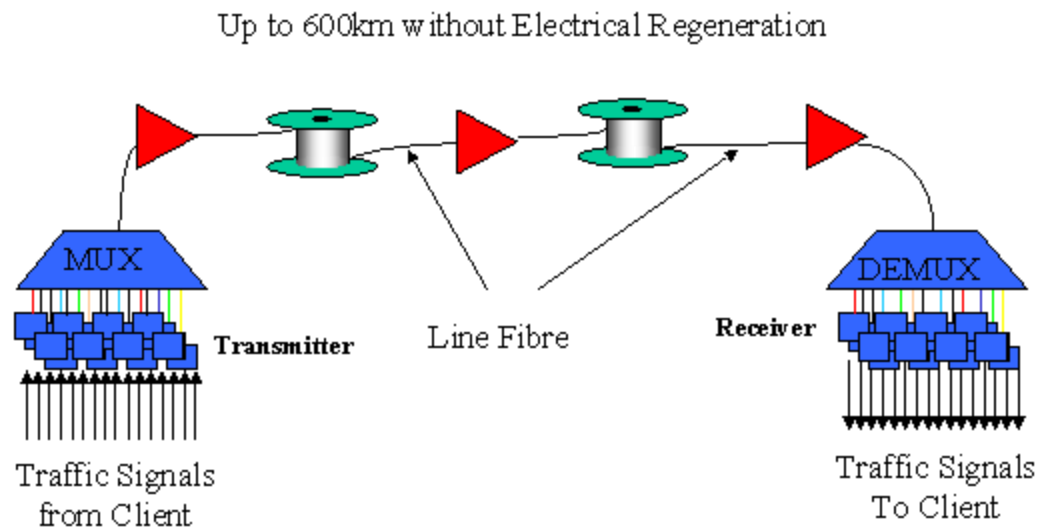
- 4 *Each channel transmitted on a different "colour". This prevents channels interfering, and allows them to be separated at the far end.*



DWDM Strategies to Stretch Scarce \$\$\$

Equipment View

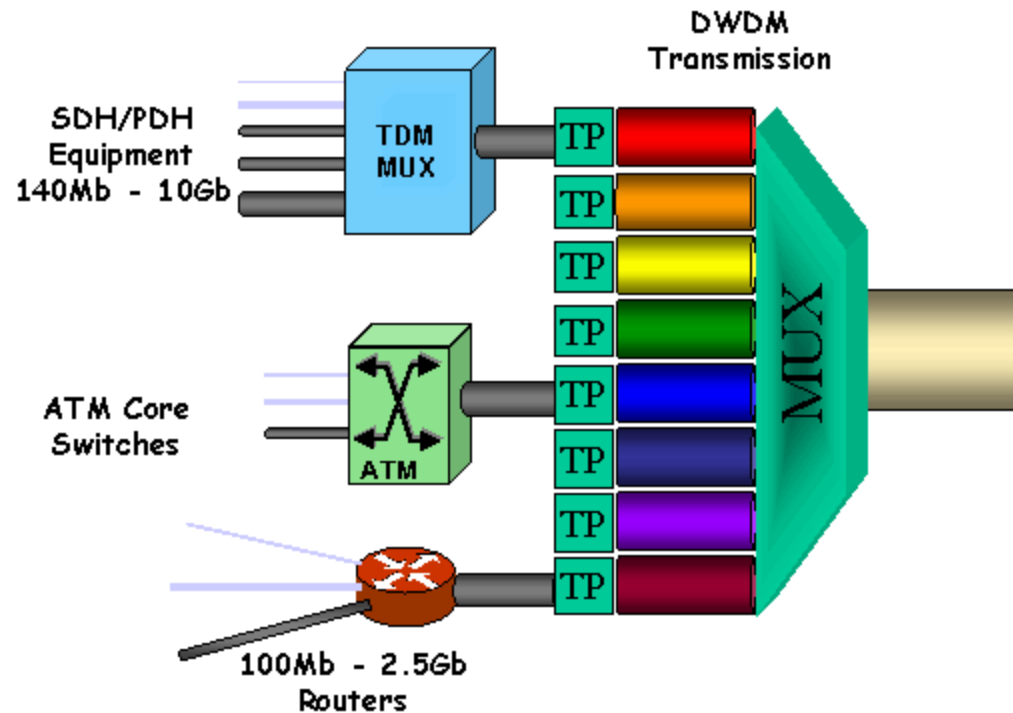
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Client Independent

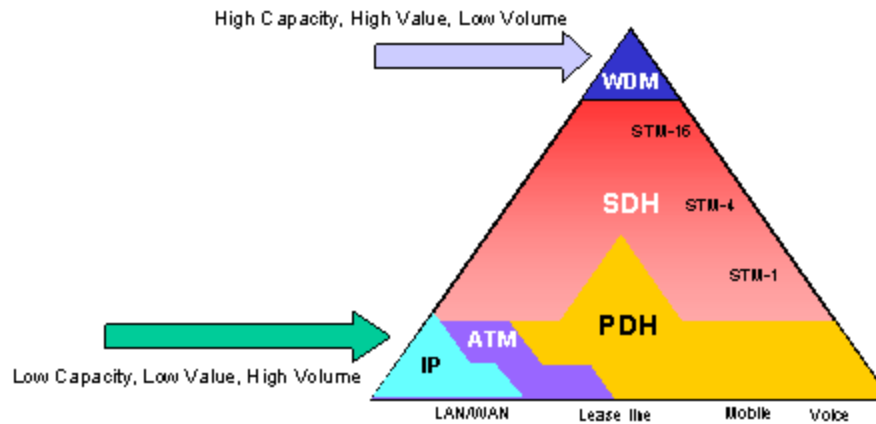
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Today's Transport Network

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Ericsson/Eirell Workshop

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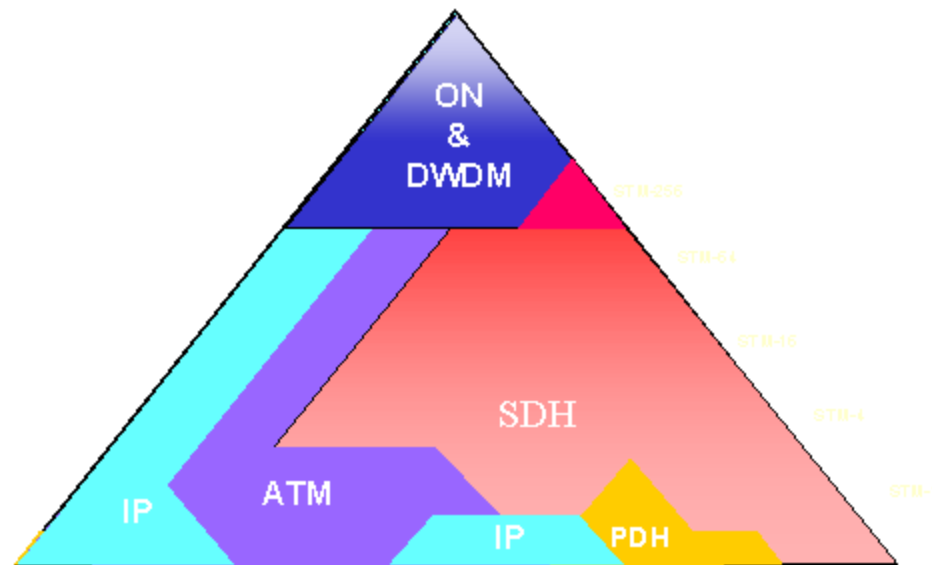


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DWDM Strategies to Stretch Scarce \$\$\$

Tomorrow's Transport Network

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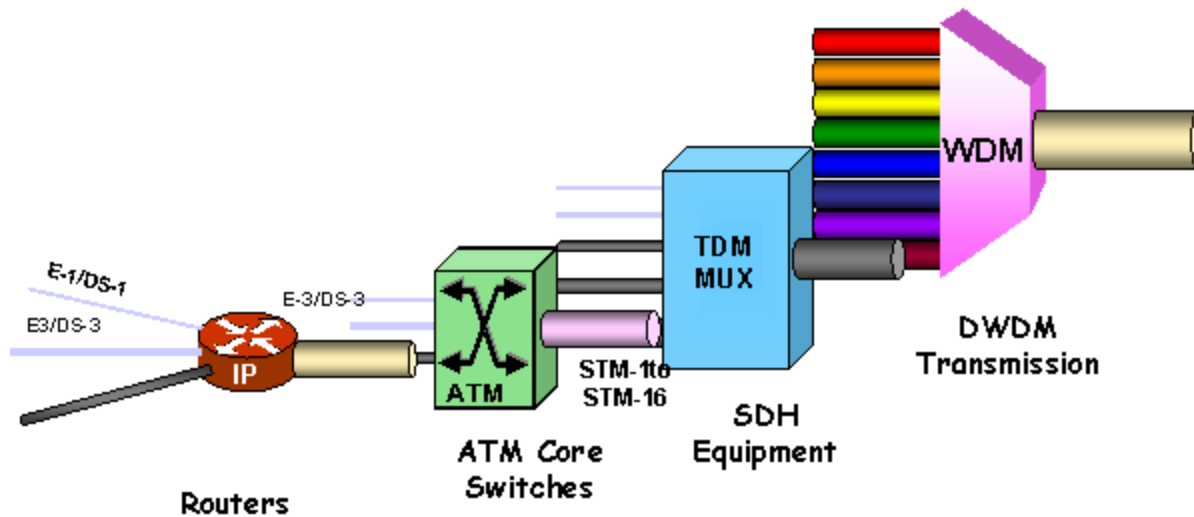


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DWDM Strategies to Stretch Scarce \$\$\$

Today's Transport Network

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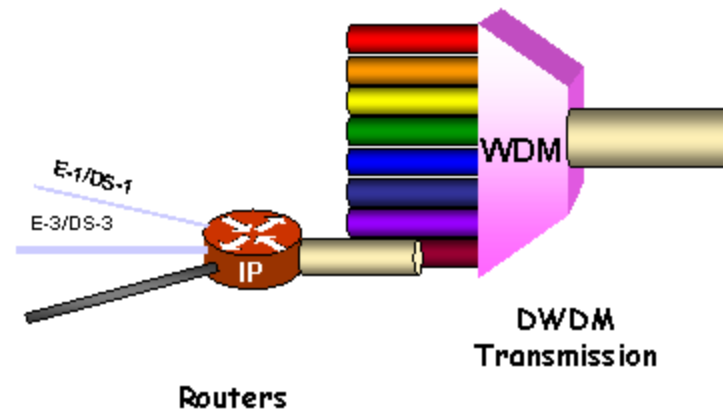
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DWDM Strategies to Stretch Scarce \$\$\$

Tomorrow's Transport Network

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Everything on IP / IP on DWDM



Green IT Strategies to Stretch Scarce \$\$\$

Warm up your Data Centers

- The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) recommended temperature for Data Centers is 27° C
- Surveys find that the actual highest temperature of air inflow through computer room-air handling (CRAH) systems is 23.3°C, with two thirds cooling to 20-21°C. There is potentially 90% energy cost savings here, simply by setting the thermostats are using ordinary floor fans for moving air through hot spots.
- Use smart systems to mix more fresh air in Winter

Shared Services

- Subsidiaries of large oil & gas corporations can share scarce knowledge resources, best practices & infrastructure to achieve significant cost savings

Green Strategies to Stretch Scarce \$\$\$

Build Offices – not Cubicles

IBM did the Santa Thersa study and Tom DeMarco did a study. Both found offices providing a **2.5X productivity improvement** over cubicles..

Total Cost of a Programmer is \$150,000/year. Space savings with cubicles is returns \$2,400 /year. The productivity savings exceeds that by far!

Turn off the lights – think green

There are systems which enable companies to improve business energy use all the way down to the level of individual IP devices such as phones, laptops, and access points. There will also be middleware to manage entire building systems, including lights, elevators and heating and cooling equipment.

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Other IT Strategies to Stretch Scarce \$\$\$

E-learning

- Save significant costs related to travel. For a one-week course, typical savings are \$ 8,000 per person. You also save two days of employee travel time.
- You save a huge carbon footprint by not travelling. Excellent CSR!

Shared Services

- Subsidiaries of large oil & gas corporations can share scarce knowledge resources, best practices & infrastructure to achieve significant cost savings

Data Deduplication

Organizations lose more than \$611 billion each year due to bad data. A major cause of bad data is duplicate records. Data volume doubles every 18 months.

60% per annum. Consider the impact on Backup & Archiving.

Deduplication can cut data related costs up to **98%**. Factor of 10:1–15:1

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Other IT Strategies to Stretch Scarce \$\$\$

Virtualization

The correct virtualization strategy can:

- reduce administration cost and time by up to 70%
- reduce IT cost of ownership by 60% per annum
- reduce spending on additional disk capacity by up to 80%
- remove the problem of the excessive backup window while increasing reliability
- reduce it security cost and improve security
- reduce carbon footprint
- significantly cut energy bills
- extend the life of your desktop