



Developments in maritime communications

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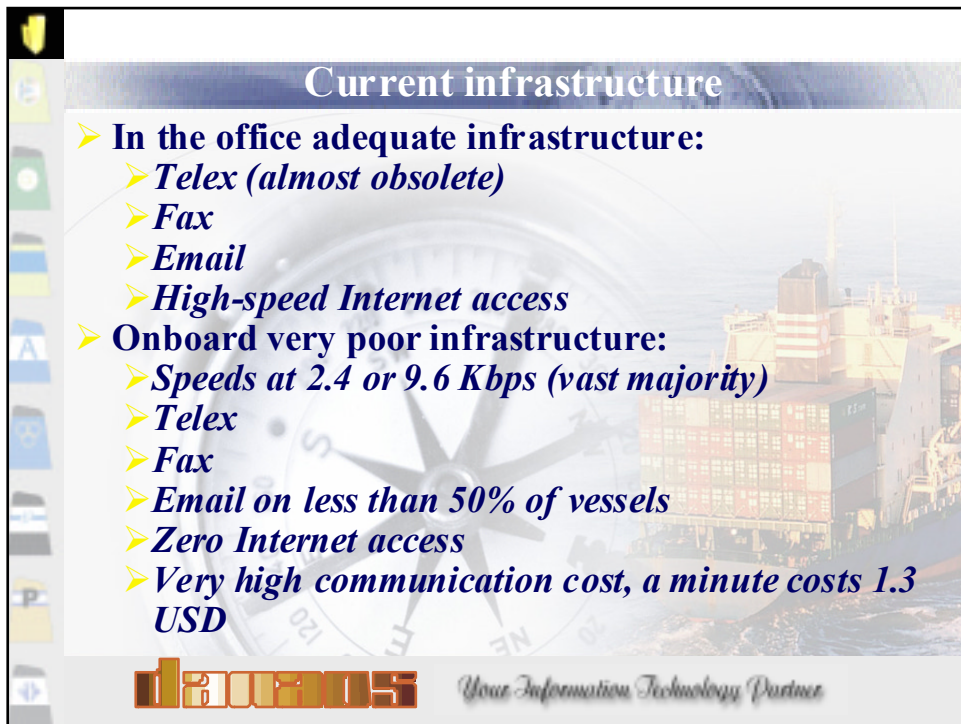
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Shipping dependence on efficient communications

- **Need to communicate efficiently with vessels and business partners globally**
- **One of the first adopters of all new communications technologies:**
 - *Telex*
 - *Fax*
 - *Email*
- **One of the best customers of telecom companies, compared to company size.**

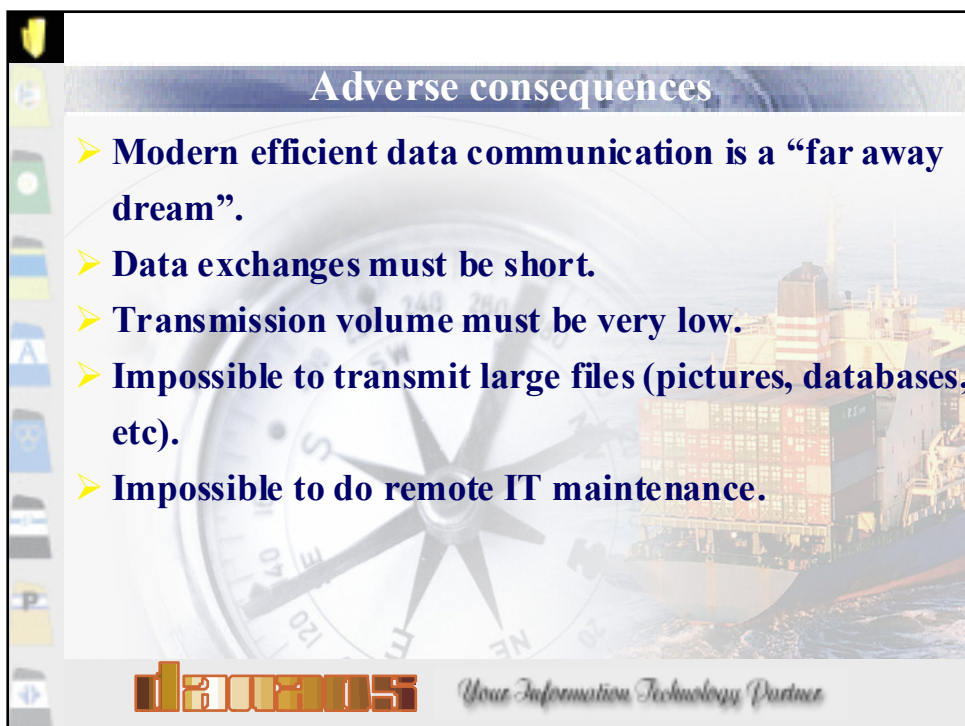
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Current infrastructure

- **In the office adequate infrastructure:**
 - *Telex (almost obsolete)*
 - *Fax*
 - *Email*
 - *High-speed Internet access*
- **Onboard very poor infrastructure:**
 - *Speeds at 2.4 or 9.6 Kbps (vast majority)*
 - *Telex*
 - *Fax*
 - *Email on less than 50% of vessels*
 - *Zero Internet access*
 - *Very high communication cost, a minute costs 1.3 USD*

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Adverse consequences

- **Modern efficient data communication is a “far away dream”.**
- **Data exchanges must be short.**
- **Transmission volume must be very low.**
- **Impossible to transmit large files (pictures, databases, etc).**
- **Impossible to do remote IT maintenance.**

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Cannot perform remote IT maintenance

- **When there is a serious IT malfunction onboard:**
- **Either the faulty PC must be landed, sent to office for repair / reconfiguration and sent back onboard**
 - *Perhaps 2 months delay in fixing the problem, vessel without computer*
- **Or an IT technician from HQ must travel to meet the vessel and fix the problem**
 - *One week per vessel visit*
 - *About 2-3,000 USD in travel and employee costs*
- **On s/w malfunctions several hours are spent on the phone to diagnose and repair by the crew**
 - *Hundreds of USD per incident*



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Fleets remain in the 80s

- **Vessels are cut-off from corporate IT infrastructure in a modern manner.**
- **Vessels cannot be connected in the same way as shops, workshops, warehouses are connected to a land-based company HQ.**
- **Missed the “information revolution” of the 90s.**
- **The whole sector has remained in the backwater of I.T. developments.**
- **I.T. is not yet a critical tool for shipping companies**
- **In a typical shipping company 2-3 I.T. staff support 1,000 – 1,500 users (including crew).**
- **All that is due to the lack of bandwidth.**



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Inmarsat new offerings

- **“Fleet” system (77, 55, 33):**
 - *High speed ISDN line up to 128 Kbps, at about 7 USD per minute.*
 - *“Always on” MPDS mode for Web browsing and data exchange at 3 USD per Mbit.*
 - *Direct Internet connectivity*
 - *Terminal costs 15-18,000 USD with installation.*
 - *About 4,000 Fleet terminals installed, 10% of vessels*
- **Maritime BGAN system from 2007 onwards, at up to 412 Kbps.**



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“Connexion by Boeing”

- **New entrant, division of Boeing offering Internet connectivity onboard airplanes.**
- **New maritime offering starting in Q4 2005, based on time spent online. For a fixed fee offers:**
 - *Ku band spot beam*
 - *Includes first 2,000 mins of data transfer at 64 Kbps, extra mins at 1,25 USD*
 - *Includes first 100 mins of voice, extra mins at 1,25 USD*
 - *Monthly cost 2,800 USD.*
 - *Includes antenna hardware.*
 - *Will reach global coverage within 2007*



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Broadband Maritime

- New company, 40 vessel installations so far
- “Always on” unlimited data transfer and Internet connectivity at 64 Kbps.
- Voice calls at 30-60 cents per min, 4 telephone lines, free unlimited email.
- At 2,250 USD per month for first 3 years, includes antenna leasing.
- At 900 USD per month after 3 years
- True C-band global coverage



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Promising market developments

- At last sufficient bandwidth is becoming available, although still at high cost.
- Charter rates have exploded upwards in the past 5 years, shipping companies have lots of cash.
- Shipping companies are embarking on large fleet modernization projects, including IT and communication systems.
- Regulatory pressure to adopt a corporate mentality (ISO/ISM, TMSA, KPIs, etc) using more I.T.



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Rapid forthcoming transformation

- **Opportune combination of technological advances and available capital for investment.**
- **The “backwater” shipping industry will be modernized rapidly.**
- **Global fleets will be brought into the 21st century within the next 3-5 years.**
- **Corresponding modernization of shipping HQ.**
- **“Green field” business opportunities for all I.T. and communications related companies.**



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Vessel LANs

- **Major drive to install LANs on all vessels**
- **Central vessel server and PC clients for each senior officer and vessel location.**
- **Connected to HQ infrastructure through a secure VPN**
- **Access to all office servers, file transfers, information exchange, emails.**



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Web connectivity

- **Weather news, route updates**
- **Chart updates**
- **Maritime and global news**
- **Reporting to specialized sites (eg certificates)**
- **Market information (online chartering, electronic procurement, etc)**
- **Security, antivirus protection, proxy servers, etc.**

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Enhanced communication capabilities

- **Voice over IP, cheap voice calls**
- **Instant messaging**
- **Teleconference, videoconference with crews and visiting inspectors**
- **Inspection reports and large associated data files (photos, video clips, etc)**
- **Crew training sessions**

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Maritime ERP systems

- **Online connection to corporate ERP system:**
 - *Vessel Operations reporting*
 - *Communications with Charterers, third parties*
 - *Supply cycle, requisitions, deliveries*
 - *Vessel Inventory follow-up*
 - *Manning, crew databases, crew transactions*
 - *MGA online*
 - *Planned maintenance follow-up*
 - *Follow-up of repairs and drydockings*
 - *ISM follow-up*
 - *KPIs calculations*



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Remote IT maintenance

- **Diagnosis of IT problems**
- **Reconfiguration of faulty software**
- **Reinstallation of software on new or replaced clients.**
- **Crew training remotely on IT systems**



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The forthcoming transformation

- Outsourcing routine tasks wherever is cost effective.
- Enabling the shipyards, classification societies, authorities and field experts to team up with crew and office executives.
- Adoption of corporate mentality.

I.T. is the way ahead to achieve the above.



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Danaos IS the market leader

- Not only leader in number of customers. *Many happy customers give us "word of mouth" promotion.*
- Not only leader in software. *The Enterprise version is the best and most comprehensive software.*
- Leader in embracing the most strategic concepts that will be at the core of the forthcoming transformation, such as:
 - *Business Process Outsourcing & Services*
 - *Broadband & communications*
 - *Advanced Decision support systems*

Through its 20 years experience Danaos has proved that it has the vision to carry forward the shipping sector.



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Danaos always honors commitments

In its 20 years history Danaos never failed to deliver on what it had promised.

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This slide features a background image of a compass and a cargo ship. The text is centered and reads: "Danaos always honors commitments" in a dark blue font at the top, followed by "In its 20 years history Danaos never failed to deliver on what it had promised." in a larger, bold, dark blue font. At the bottom, the Danaos logo is displayed in a stylized, metallic font, followed by the tagline "Your Information Technology Partner" in a smaller, italicized font.

THANK YOU

DANAOS *Your Information Technology Partner*

This slide features a background image of a compass and a cargo ship. The text is centered and reads: "THANK YOU" in a large, bold, dark blue font. At the bottom, the Danaos logo is displayed in a stylized, metallic font, followed by the tagline "Your Information Technology Partner" in a smaller, italicized font.