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News Events Partnerships

From Paper Tape To Low Latency Data – A Lifetime In Market Data

Webinar

Tuesday 10 November 2020





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A Word From Today's Chairman



**Professor Michael
Mainelli**

Executive Chairman

Z/Yen Group



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Agenda

- 11:00 – 11:05 Chairman's Introduction
- 11:05 – 11:30 Keynote Address
- 11:30 – 11:45 Questions & Answers



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From Paper Tape To Low Latency Data – A Lifetime In Market Data



Herbie Skeete

Managing Director

Mondo Visione

From Paper Tape To Low Latency Data

A Lifetime In Market Data

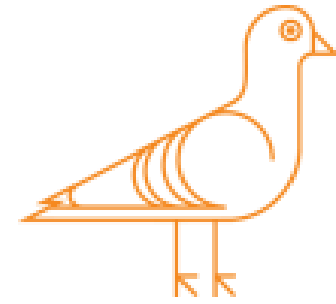


Reuters one of the world's very first FinTechs

- Technology has been a key pillar of their business for over 150 years
- Innovation Embedded In The DNA



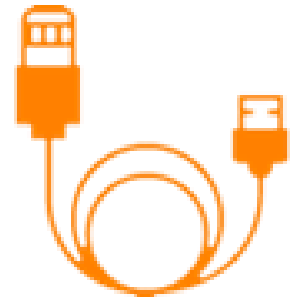
1850 - Pigeons



- Story begins not with paper tape, but carrier pigeons
- Carrier pigeons used to forward stock and commodity prices from Brussels, where the Belgium telegraph line ended, to Aachen, where the German line began
- Perhaps the beginning of the old Reuters saying, there is a gap in the market, but is there a market in the gap.
- Carrier pigeons last used in anger reporting the Normandy landings in World War 2.



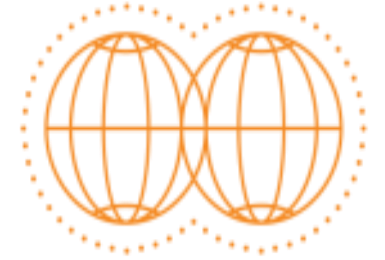
1858 – Follow The Cable



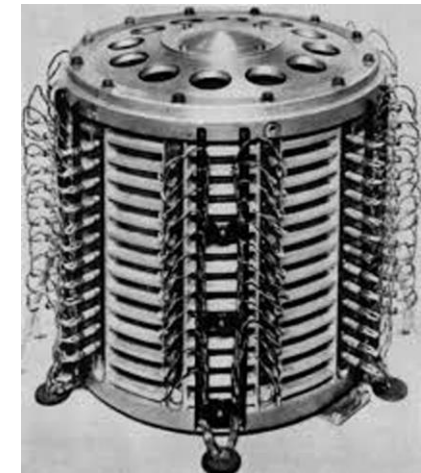
- Cable from UK to USA laid, enabling Reuters to expand news coverage
- Coverage included commercial and shipping news
- Reuters first to report President Lincoln assassination
- The myth is that Reuters was two days ahead - Reality two hours
- Capacity problems are not new. In 1865 messages from the London Stock Exchange were overloading the telegraph network



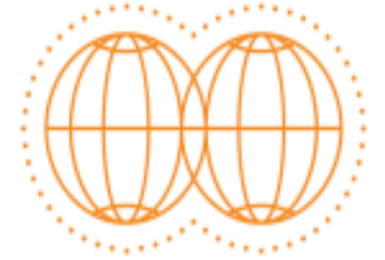
1964 - Stockmaster



- Reuters Stockmaster price retrieval service launched
- Main systems based on IBM 360
- Data from exchanges stored on magnetic drums and retrieved on small desktop machine similar to an adding machine with an electronic display
- Machine bootstrapped from front panel and paper tape
- Program loaded from punched cards
- Newbies had to hand assemble code for first six months
- Debugging software not a job for the faint hearted



1964 – Stockmaster



- The first transatlantic Time Division Multiplexer installed as part of the project
- The 2400 bps link said to be first private circuit of its kind across the Atlantic
- Reflecting the inventiveness of the day, the London Data Centre in 85 Fleet Street used a fish and chip shop fitter to build the operational consoles



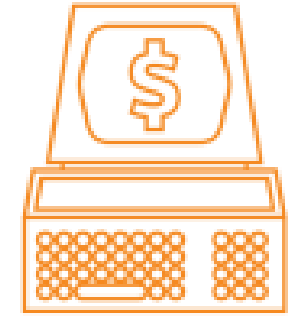
A Quick Poll

Have you ever used paper-tape or punched cards?

1. Yes
2. No



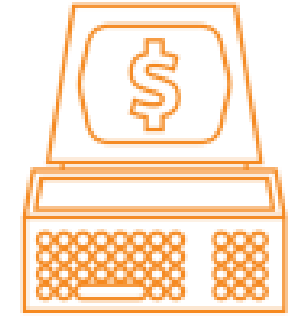
1973 - Monitor



- Conceived in 1972 after “Nixon Shock” of 1971 ended ability to convert the US Dollar into a fixed amount of gold.
- This signalled end of Bretton Woods system of static exchange rates
- Currencies could now move freely against each other
- A new, unregulated, market emerged
- Idea of developing an international “forex network” to capitalize on this situation was risky
- It appeared to run against telecoms rules about carrying traffic from a third party on a leased line



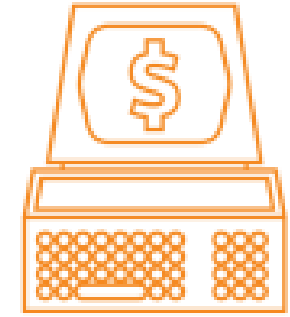
1973 - Monitor



- It required development of reliable, efficient software
- Reuters expertise had been mainly in hardware
- However, it played to Reuters strengths in innovative use of communications and its principles of accuracy, speed and integrity
- Technical context interesting - Apple and Microsoft had not been founded
- The founders of Google had not been born
- Newly created Intel had just launched its first 4-bit microprocessor
- The Internet as we know it had not started



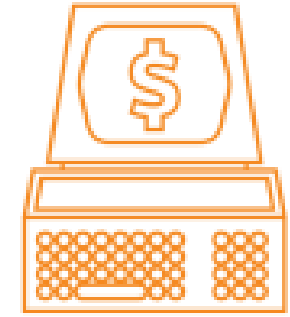
1973 - Monitor



- There was no suitable Operating System
- There was no suitable high-level computer language on which to base the development
- Initial development environment, primitive, involving paper tape, magnetic tape and data entry via teletype
- Development of PDP8 software was particularly challenging
- 1,000 12-bit words of memory were available for the software
- Computer had just eight instructions and two addressable registers.



1973 - Monitor



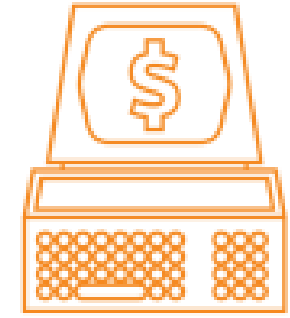
- Monitor service first ran in London on 25 June 1973
- Approximately 30 clients



A dealing room before the age of the Reuter Monitor



1973 - Monitor



- Trading in FX markets reached USD6.6 trillion per day in April 2019



*The Reuter Monitor keystation
in its brushed aluminium finish*



A Second Poll

Have you programmed in Assembler?

1. Yes
2. No



1981 - Dealing



- Dealing launched - 145 subscribers in 9 countries, 23 February 1981
- In phase one Dealing is by dialogue not by matching
- Dealers communicate with each other to buy, sell, lend money
- By 1984 The Dealing service was a basic money market tool
- The world's first social media platform
- Drawback – ability for anyone contact anyone isn't good idea if are at war.



1986 – Advanced Reuters Terminal



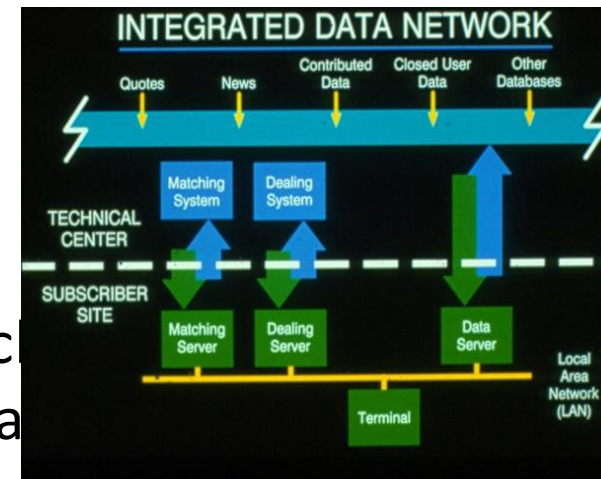
- Reuters were playing around with early technology using Windows, Icons, Mice
- Working with various research labs
- The ART, first Reuters Terminal to run under Microsoft Windows
- Combines Monitor data with news, graphics and eventually spreadsheet capabilities
- Novel product sold well



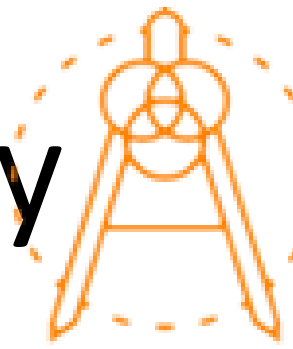
1987 – IDN



- IDN, Global Highway for Data - first product, Equities 2000 goes live
- Reuters now sources all exchange data globally, no longer needs ADP/GTEIS for North American data
- In October 1987 soon after IDN's launch the stock market crashes
- Traffic exceeds design limits but IDN stands the strain
- Reuters now begins looking into the future - impact of regulatory changes on trader behavior impact on traffic rates, impact on central systems and data delivery
- Reuters purposefully monitors technology to bake in the future to service new product levels and future products



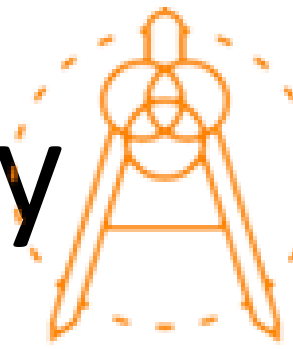
1987 – Dealing Room Technology



- Reuters sells first client site Local Area Network
- Servers are developed to process feeds of data and make them available to dealers for display and manipulation
- UNIX based workstations appear on the market many times more powerful than PCs
- Their capabilities make them a favourite with traders and they soon become the de-facto standard in trading rooms.



1987 – Dealing Room Technology



A Reuters Dealing Room system in the late 1980s – a far cry from the 70s



1988 – Globex



- Agreement concluded with CME to develop a global electronic trading system
- GLOBEX introduced in mid-1989
- GLOBEX operates outside regular trading hours of open outcry market to provide 24-hour trading
- First example of Reuters acting as a turnkey systems provider



1992 – Dealing 2000



- Reuters launches Dealing 2000 on 29 April
- Product adds automatic matching of bids and offers to the conversational product
- Twenty-two banks sign up to use system
- Currencies available Dollar/Sterling, Dollar/Mark, Dollar/Yen
- Architecture revamped to support multiprocessor technology



1990s – AI +



- Reuters developed world's first AI powered market surveillance system
- Reuters works with consortium of leading academic institutions using parallel processing for deep analysis of financial information
- Reuters works with researchers looking at applying pattern recognition to market data applications



A Final Poll

Will Reuters/Refinitiv reclaim its lost glory?

1. Yes
2. No



The Future



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- Acquisition by London Stock Exchange Group - Expected Q1 2021
- Will New Reuters get its Mojo back? Not likely
- New combo will be even more risk averse - You cannot innovate by committee
- Reuters will only be reborn when the stultifying dead hand of bureaucracy is removed
- Incremental change never cuts it



Summary



- Reuters was a wonderful and valuable business
- With innovative revolutionary products that changed the way markets worldwide operate
- If technology not available or too expensive, solution designed and built in-house - No problem insoluble - That was built into our DNA – then.
- Technical boundaries were pushed to their limits to build unique global products.



QUESTIONS & DISCUSSION, ANSWERS?





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- Tuesday 17 Nov (15:00) [Insights into Share Valuation for Employee Share Schemes: Revealed through Dynamic Case Studies](#)
- Wednesday 18 Nov (10:00) [VR, AR or MR – Is The Virtual World More Real Than We Think?](#)
- Wednesday 18 Nov (18:00) [Life Is Wonderful: Mandela's Unsung Heroes](#)

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