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Podcast Interview:

With Amy Slater and William Slater

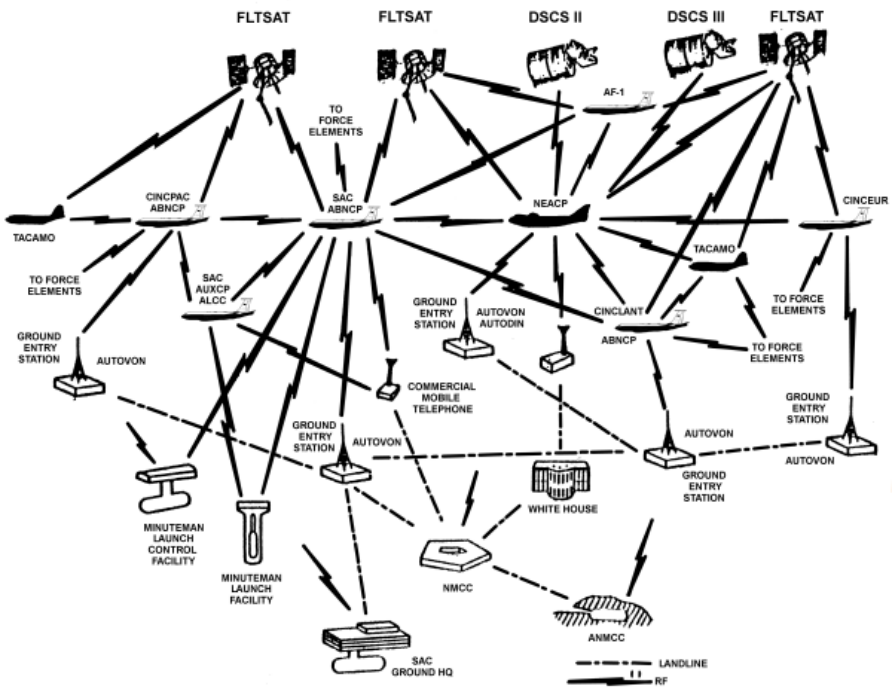
March 31, 2026

1. “William, you’ve worked across enterprise IT, cybersecurity leadership, government projects, consulting, and even the military. Can you walk us through your journey and what originally pulled you into technology?”

- I got hooked on technology as I watched all the NASA Manned Space Flight missions of the 1960s. But what clinched it for me was in 1968, when I first saw the movie, “ 2001: A Space Odyssey “, in the scene where the HAL 9000 computer argued with the lone surviving human crew member, Dave Bowman, about opening the Pod Bay door to return the inside of their spacecraft, Discovery en route to Jupiter. It infuriated me that a super advanced computer could behave in this manner and I decided if I was ever in a similar situation with a computer, I would apply my mind, and will and skills and win against it.

1. “William, you’ve worked across enterprise IT, cybersecurity leadership, government projects, consulting, and even the military. Can you walk us through your journey and what originally pulled you into technology?” (Part 2)

- Started in the U.S. Air Force in July 1977
- Civilian Career started in November 1980
- Programming
- Database Analyst and Engineer
- Micro-to-Mainframe Engineer
- Client/Server Architect
- Project Manager
- Data Center Manager
- Change Management Manager
- Program Manafer
- Global Cybersecurity Manager
- SOC Project Manager
- Application Development Program Manager
- CISO
- vCISO
- Quantum Technology Manager



WORLDWIDE MILITARY COMMAND AND CONTROL SYSTEMS

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COMMAND
CONTROL

1. “William, you’ve worked across enterprise IT, cybersecurity leadership, government projects, consulting, and even the military. Can you walk us through your journey and what originally pulled you into technology?” (Part 3)

William Favre Slater III

M.S., MBA, PMP, CISSP, SSCP, CISA, Security+, MCSE, MCITP, ITIL v3, ISO 27002, ISO 20000

Career Experiences in Information Technology

Last Updated on April 3, 2016

Job No.	Employer	Location(s)	Length In Months	Hours / Week	Start and End Dates	Position(s)
29	Adecco	Chicago, IL	8	40	8/6/2015 - Present	Global Cybersecurity Manager / Delivery Project Executive
28	Technatomy Corporation	Chicago, IL and Fairfax, VA	9	50	8/18/2014 - 6/12/2015	Project Manager for the U.S. Department of Veterans Affairs
27	Slater Technologies	Chicago, IL	42	40	3/15/2011 - Present	Sr. IT Security Consultant / IT Project Manager
26	CACI	Chicago, IL and Arlington, VA	8	55	7/25/2011 - 3/14/2012	Program Manager on a large application development project at the U.S. Dept. of Veterans Affairs
25	Slater Technologies	Chicago, IL	7	40	1/30/2011 - 7/14/2011	Sr. IT Security Consultant / ISO 27001 Implementation Consultant / Architect in ISMS
24	Illinois Institute of Technology	Chicago, IL	90	20	1/15/2011 - Present	Adjunct Professor (2000 - 2002, and 2011 - Present)
23	ESN	Arlington, VA & Hines, IL	12	52	1/25/2010 - 1/30/2011	Project Manager - Team Manager managing a 14-person Network Security Team
22	CSSS	Peterson AFB, CO	4	50	9/28/2009 - 1/22/2010	ITIL Project Manager - Managing a 12-person ITIL Implementation Project
21	Technisource	Itasca, IL	5	50	11/10/2008 - 3/13/2009	Data Center Technical Project Manager - Consultant on Data Center Build and Migration Project
20	Microsoft	Northlake, IL	7	100	03/24/2008 - 10/27/2008	Data Center Manager of the World's Largest Data Center - Leading a 21-person Team
19	CSSS	Hines, IL	16	50	11/28/2006 - 3/23/2008	Program Manager at Hines VA managing a 22-person Infrastructure Team & Projects
18	Getronics	Naperville, IL	42	50	3/1/2003 - 11/3/2006	Data Center Manager / Change Management Manager / Project Manager
17	SAIC	Naperville, IL	21.5	48	5/21/2001 - 2/28/2003	Process Technical Lead / Data Center Manager / Change Management Manager
16	Net1Source Corp.	Elk Grove Village, IL	2	45	2/19/2001 - 4/13/2001	Senior Technical Consultant
15	Chicago Manufacturing Center	Chicago, IL	8	48	7/3/2000 - 2/16/2001	Senior Business Advisor / Database Administrator
14	Slater Technologies	Chicago, IL	11	48	8/16/1999 - 7/1/2001	Project Manager / Senior Technical Consultant
13	American Digital Corporation	Chicago, IL	2	50	6/14/1999 - 8/16/1999	Senior Technical Consultant
12	MicroAge Computer Centers	Chicago, IL	11	45	6/21/1998 - 4/20/1999	IT Consultant / Project Manager / Network Analyst
11	Automated Concepts Inc.	Chicago, IL	21	45	09/09/96 - 06/19/98	IT Consultant / Network Analyst
10	University of Illinois at Chicago	Chicago, IL	5.5	48	03/27/96 - 9/06/96	Network Analyst
9	Net Advantage Corp.	Chicago, IL	8.5	50	06/01/95 - 02/07/96	Consultant
8	Corporate Computing International	Bannockburn, IL	5	75	12/23/94 - 05/31/95	Senior IT Consultant
7	Systematics Telecommunications	Twinsburg, OH	6	55	03/14/94 - 09/07/94	Client/Server Architect
6	Digital Equipment Corp.	Chicago, IL; Colorado Springs, CO; Merrimack, NH	41	48	06/18/90 - 3/11/94	Principal Software Specialist / Project Leader
5	Marshall Field's	Chicago, IL	15	40	03/14/89 - 06/07/90	Database Analyst
4	Northrop DSD	Rolling Meadows, IL	28	45	11/3/86 - 02/27/89	Database Analyst
3	Texas Eastern	Houston, TX	58	40	12/28/81 - 10/15/86	Database Analyst
2	Tennessee Gas Transmission Co.	Houston, TX	12.5	45	11/3/80 - 11/17/81	Programmer / Analyst II
1	U.S. Air Force	Offutt AFB, NE	39.5	45	7/15/77 - 10/22/80	Computer System Staff Officer
		Average of Months	18.81	48.86	Average Hours / Week	
		Median of Months	11.00	48.00	Median Hours / Week	
		Standard Deviation of Months	20.06	12.97	Std Dev of Hours / Week	
		Total of Months	545.50	26,654	Total of Hours	

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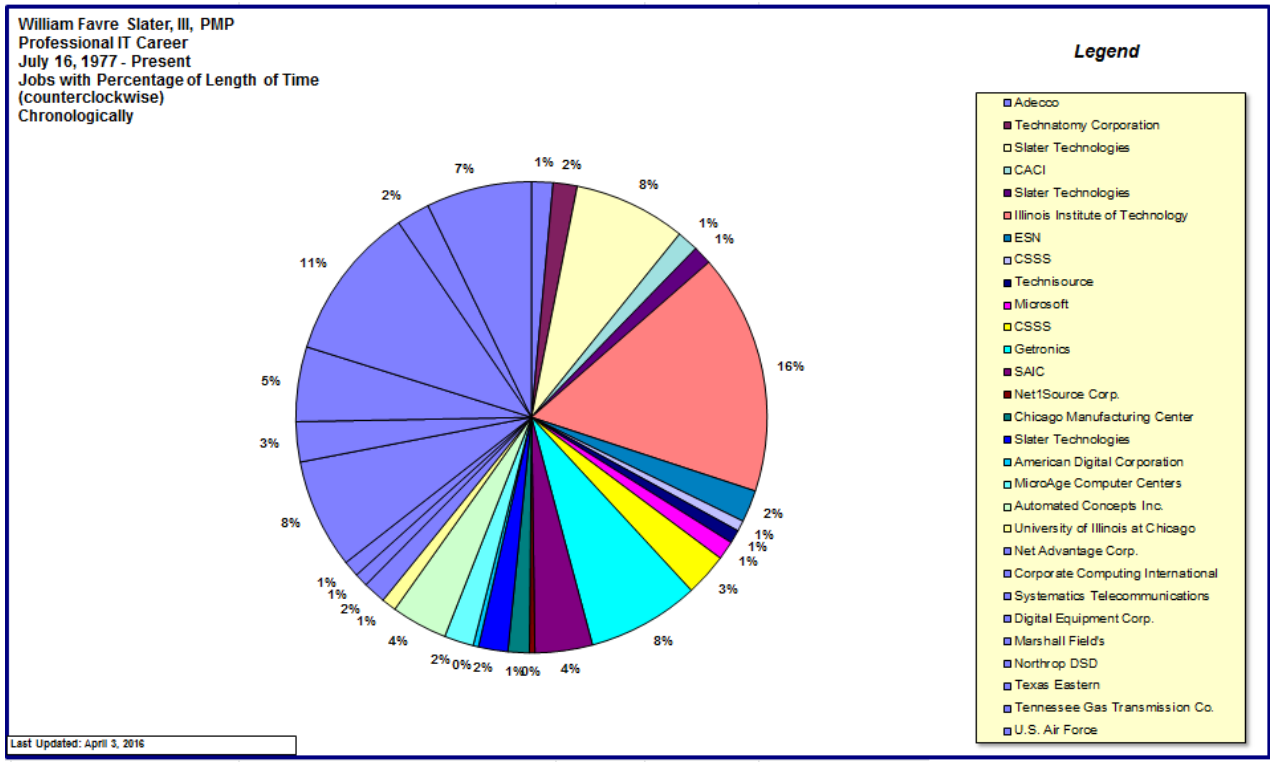
1. “William, you’ve worked across enterprise IT, cybersecurity leadership, government projects, consulting, and even the military. Can you walk us through your journey and what originally pulled you into technology?” (Part 4)



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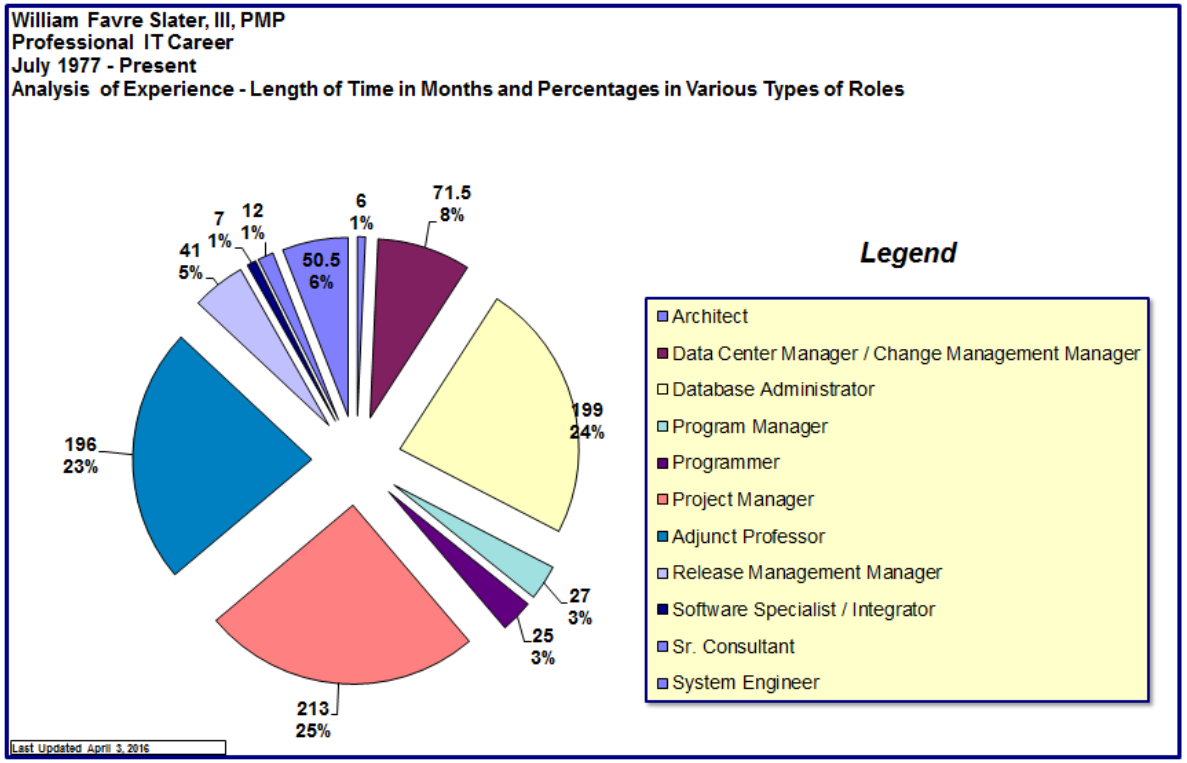
1. “William, you’ve worked across enterprise IT, cybersecurity leadership, government projects, consulting, and even the military. Can you walk us through your journey and what originally pulled you into technology?” (Part 5)



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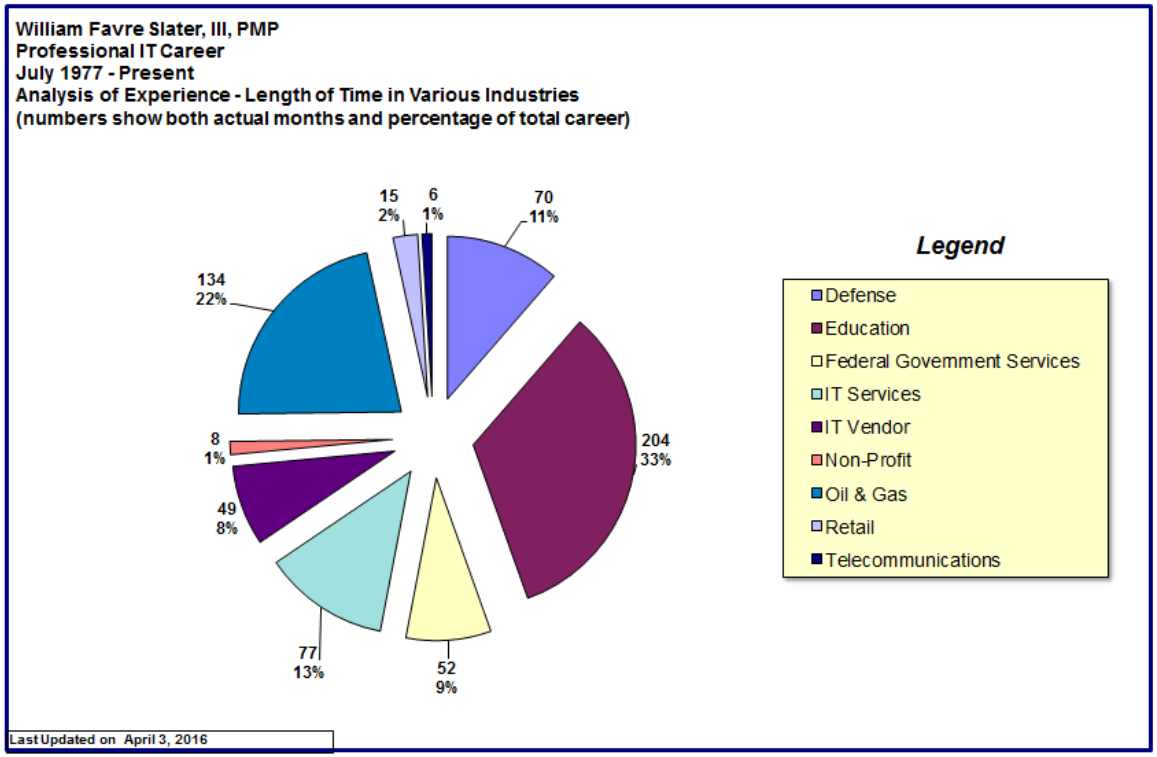
1. “William, you’ve worked across enterprise IT, cybersecurity leadership, government projects, consulting, and even the military. Can you walk us through your journey and what originally pulled you into technology?” (Part 6)



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2. “You’ve managed massive environments — including Microsoft’s Chicago cloud data center and enterprise healthcare systems at the VA. How did those high-pressure environments shape the way you think about risk and infrastructure?”

- I quickly learned:
  - The difference between Risk Analysis and Risk Management
  - The importance of quickly getting on top of risk and managing it well, and the consequences of not doing that
  - How risk can have a cascading effect, that can negatively affect profits and brand integrity.
- I also learned that attempting to conceal legitimate risk situations that should be properly annotated in a Risk Management Register can have extremely detrimental consequences to Teams and Projects. (I saw my boss do this in 2014 – 2015. It went very badly for him.)

3. “You’ve also been teaching and mentoring for decades. Why has education been such an important part of your career?”

- Education is the way I have been able to continue to keep up with the intense changes that have defined the Information Technology and Cybersecurity Fields.
- I earned these degrees and 88 certifications.
  - M.S. in Cybersecurity, Bellevue University, Bellevue, NE, Graduated 2013
  - Master of Business Administration (MBA), University of Phoenix, Phoenix, AZ, Graduated 2010
  - Data Center Technology Certification Program, Marist College, Poughkeepsie, NY, Graduated 2008
  - M.S. in Computer Information Systems, University of Phoenix, Phoenix, AZ, Graduated 2004
  - Squadron Officers School, United States Air Force
  - B.S. Engineering Technology, cum laude, University of Memphis, Memphis, TN
- I taught for over 30 years because I discovered in my 20s that I am very good at it.

William Slater, Joanna Roguska, and James P. Jarnagin
May 30, 2015
Bellevue University, Bellevuem Nebraska
M.S. in Cybersecurity

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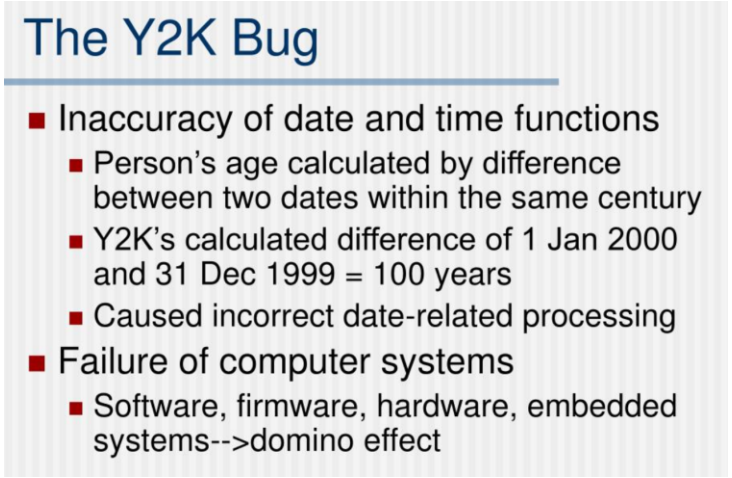
4. “What was Y2K actually like behind the scenes for IT leaders and engineers?”

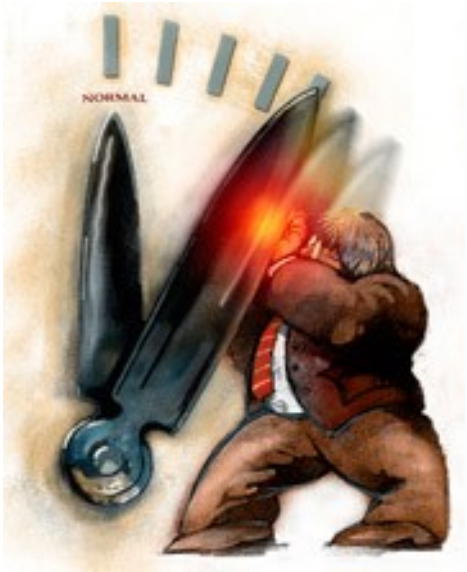
- There was a lot of denial and procratination related to understanding and fixing the Y2K problem.
- Then starting in May 1999, they realized that December 31, 1999 was coming faster than they realized, and that they better get busy and start planning and working on a lot of Y2K remediation projects. It involved a lot for work in software and patching and editing programs. Firmware and hardware had to be updated and in some cases, replaced.
- Once people were able to understand the financial consequences for failure, they got very busy and made these Y2K remediations. At the scale we were dealing with, a lot of money and jobs would be lost if these projects failed, so we had to be successful.



20 Years Later, the Y2K Bug Seems Like a Joke—Because Those Behind the Scenes Took It Seriously
by Francine Uenuma. December 30, 2019
https://time.com/5752129/y2k-bug-history/

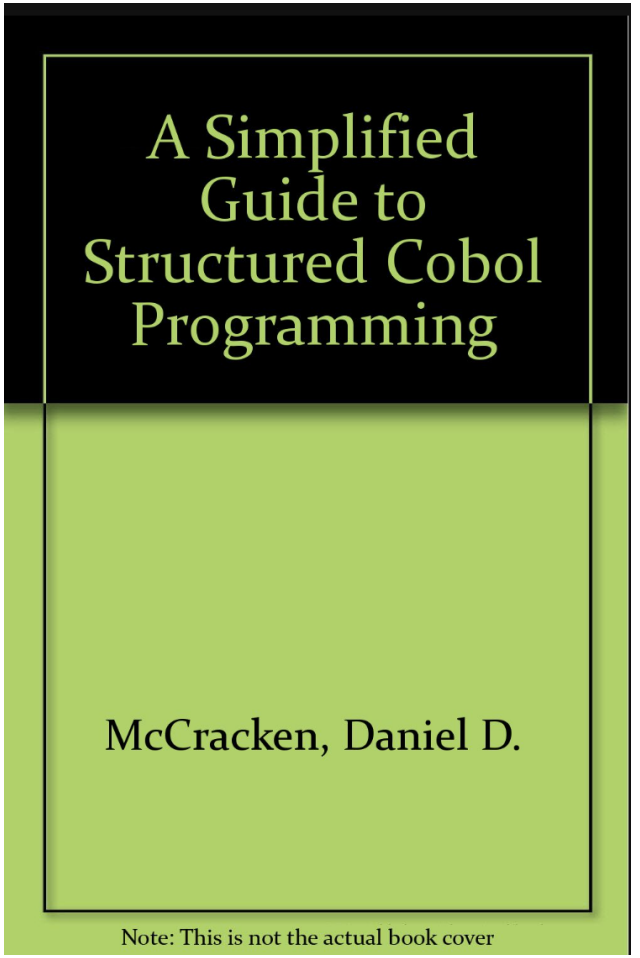
5. “What mistakes did organizations make during Y2K that MSPs are still repeating today?”

- Failure to understand “ The Problem “ and “ the Urgency of the Problem “.
- Procrastination to act of Fixing the Problem.



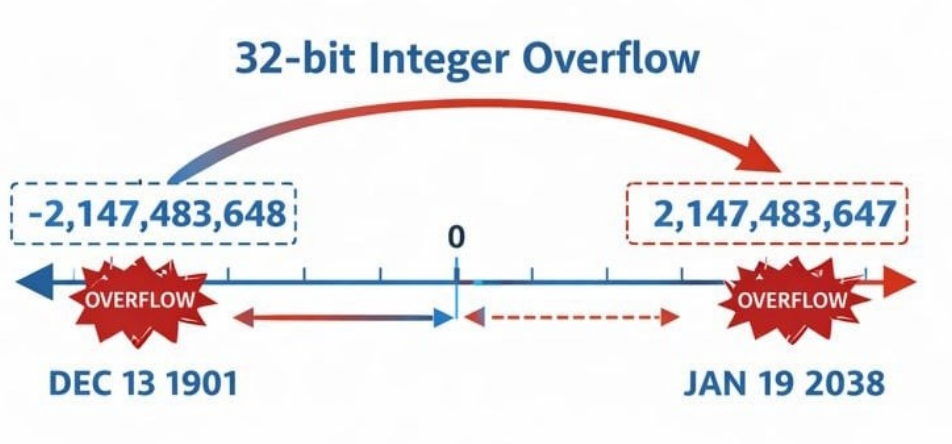
6. “Who benefited most from Y2K — the reactive IT shops or the proactive ones?”

- The Proactive organizations fared better than the Reactie organizations.
- It was reported during that time that some COBOL programmers who had come out of retirement to update their old COBOL systems, were making as much as $800 / hour as they worked to meet the December 31, 1999 deadline.



7. “For MSPs listening right now, can you explain the 2038 problem in simple terms?”

- The Year 2038 problem is a computer bug where systems using 32-bit time will overflow on January 19, 2038, causing dates to reset to 1901 and potentially causing system failures unless upgraded to 64-bit time.



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8. “What types of systems are most vulnerable — legacy Linux, embedded systems, IoT, network devices?”

- **All of the Above.**

- **What Could Go Wrong?**
  - **Possible failures include:**
    - System crashes
    - Incorrect timestamps
    - Database corruption
    - Expired security certificates
    - Banking and financial calculation errors
    - Airline reservation failures
    - Power grid / industrial control issues
    - Embedded devices malfunctioning
    - Logging and audit failures
    - IoT device failures

- This is similar in concept to **Y2K**, but more technical and hidden.

9. “Why should MSPs start planning now instead of waiting another decade?”

- **Yes. Organizations with Y2038-vulnerable systems should plan their remediation projects NOW**.

- **How It Is Fixed?**
  - The solution is to move from **32-bit time to 64-bit time**.
  - A 64-bit signed integer can store time for **billions of years**, effectively solving the problem permanently.

- **Typical remediation steps:**
  1. Upgrade operating systems to 64-bit
  2. Update compilers and libraries
  3. Recompile software with 64-bit time_t
  4. Update databases
  5. Replace embedded devices
  6. Test date rollover scenarios
  7. Update file systems
  8. Validate certificates and time calculations
  9. Inventory all systems using time
  10. Develop migration plan for legacy systems

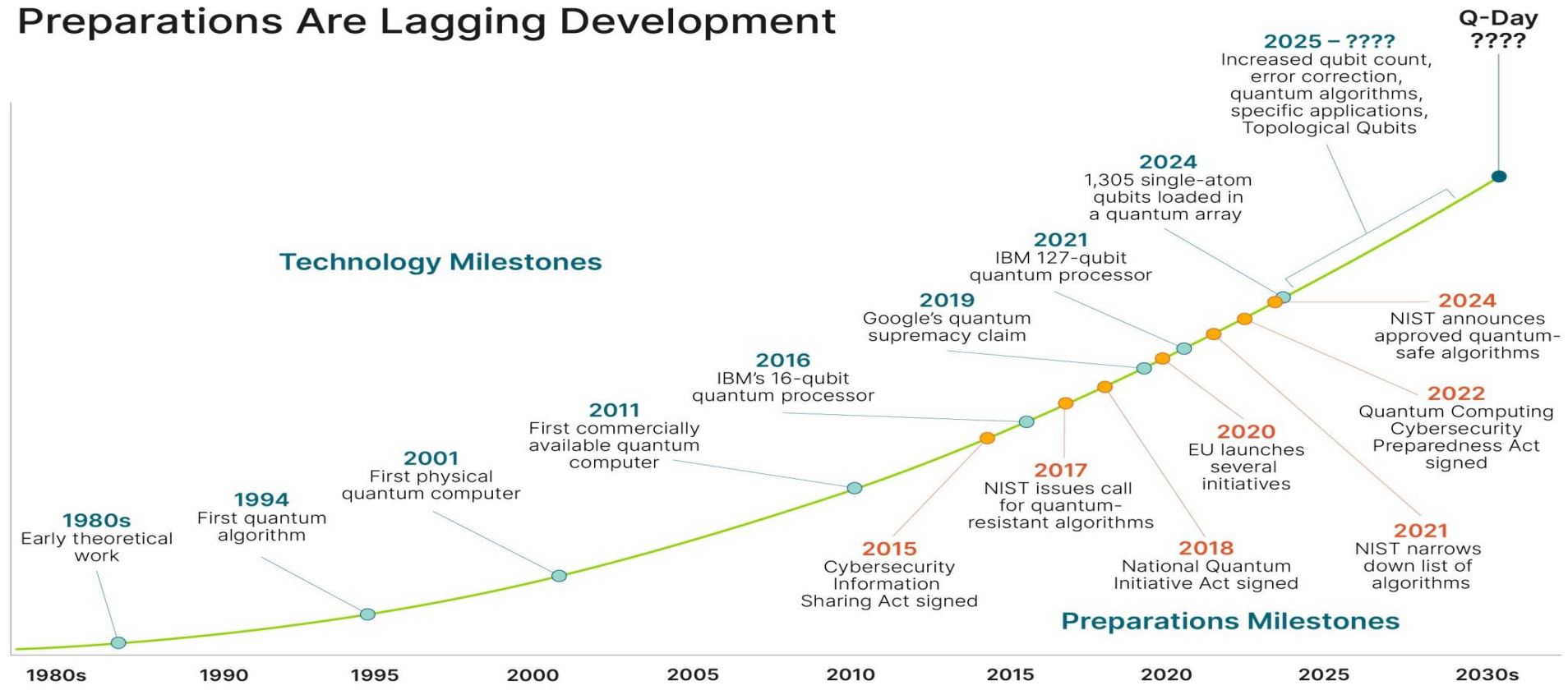
10. “What risks do you see for MSP clients that are still running legacy infrastructure?”

- The shift to Quantum Technology will not nullify the importance of legacy infrastructure. In fact, those that do adopt Quantum Technology will have to continue to maintain a legacy infrastructure that will be joined with their Quantum Systems in a Hybrid Architecture.

- However, those who ignore Quantum Technologies altogether, will not have the performance and economic advantages in the areas of:
  - Cybersecurity
  - Post-Quantum Cryptography
  - Drug discovery
  - Materials science
  - Artificial Intelligence
  - Optimization and logistics
  - Financial modeling
  - Climate modeling
  - Defense and intelligence

I don’t know his exact age, but he speaks of having programmed an IBM 650 computer.

10. “What risks do you see for MSP clients that are still running legacy infrastructure?” (Part 2)



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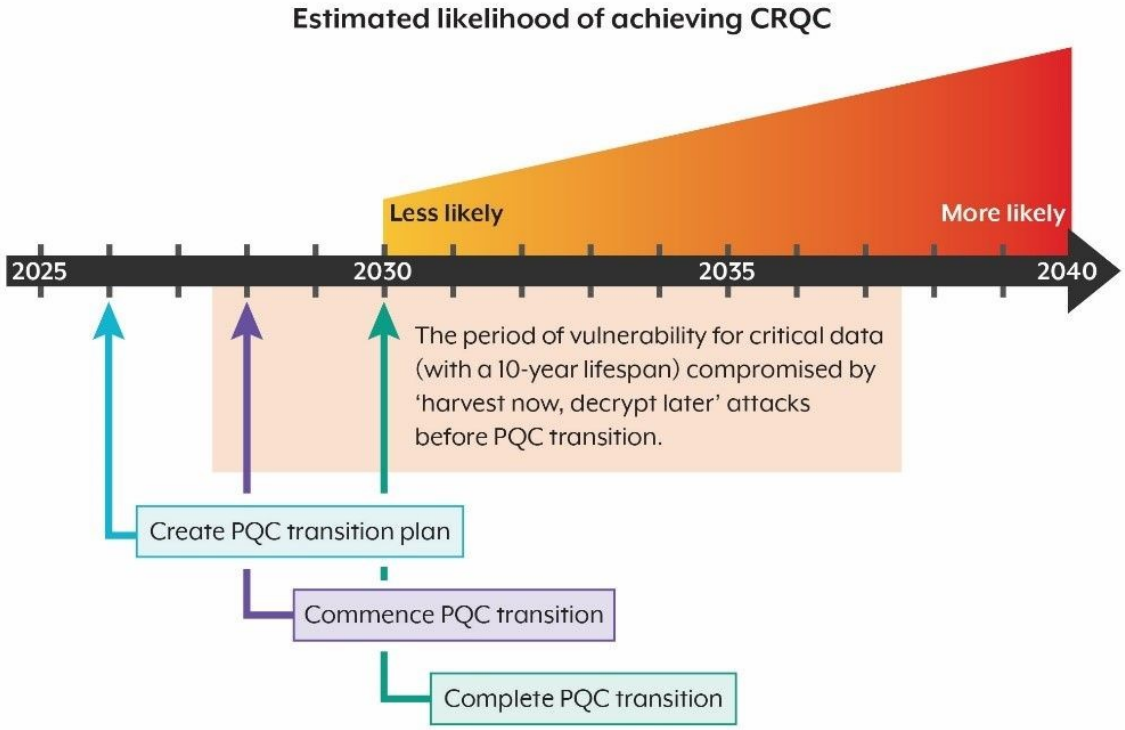
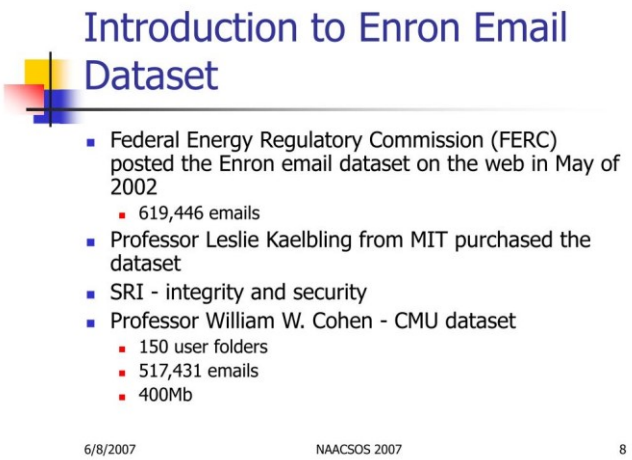
11. **“What does quantum computing realistically mean for cybersecurity today versus hype?”**

- It means that because of advances in Quantum Technologies, legacy Cryptography as we know it today, has a much shorter shelf-life that we originally believed, and whether we like it for not, over 80 billion devices must have their cryptographic settings and configurations modernized, or else they data we thought we were protecting will be totally exposed.



12. “Why is Post-Quantum Cryptography becoming such a major topic for enterprises and governments?”

- Organizations like NIST have recognized the threat of Quantum Computers and Cryptanalytic algorithms for years as well as the need to address the inherent weaknesses in present-day encryption as ECC and RSA.
- Smart managers realize that Cryptanalytic Algorithms like Shor’s Algorithm and GEECM already exist.
- Researchers are watching the rapid advances in the capabilities of Quantum Computers and realizing that Q-Day, when Cryptographically Relevant Quantum Computers (CRQCs) become commonplace and can run the programs required to break classical encrypted data.
- At the present rate of innovation and development, many experts estimate Q-Day will happen between 2028 and 2030.
- When Q-Day occurs, data that has been encrypted and captured will be at risk. This risk is known as “ Harvest Now Decrypt Later “.
- Do an Internet Search on “ Enron Email Dataset “ and also “ Peter Attia Epstein “ and you will understand the akward situations involving unintend releases of data that was previously thought to be CONFIDENTIAL and PROTECTED.



Source: https://en.wikipedia.org/wiki/Shor%27s_algorithm

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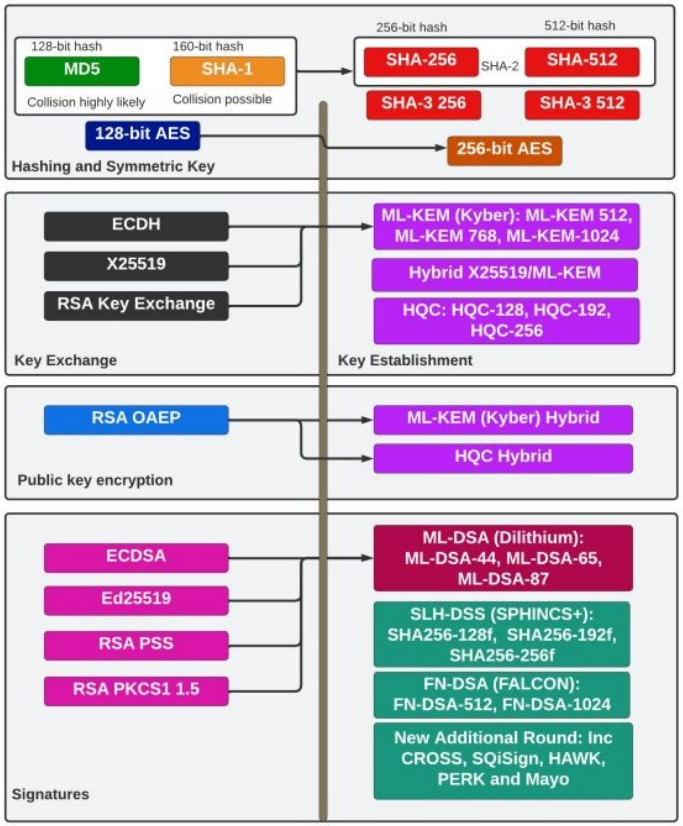
13. “What should MSPs understand about encryption risks and long-term data security?”

- Encryption has a shelf life
- Understanding Cryptography and Cryptographic Standards and Uses is essential to being successful in PQC Migrations and Infrastructure management, Cybersecurity, and Application Development.
- Understanding the nature of data, its importance and life-span are absolutely required to understand the management of data and the resources required to protect and management.
- The arrival of Q-Day will make most data that was believed to be protected by encryption, to be vulnerable to unintended disclosure.



NIST timeline:
2030: All existing public key methods and 112-bit symmetric/hashing methods deprecated
2035: All existing public key methods and 128-bit symmetric/hashing methods removed from FIPS 140

FIPS 203: ML-KEM
FIPS 204: ML-DSA
FIPS 205: SLH-DSS
FIPS 206: FN-DSA (FALCON)

To be setup as a FIPS standard:
HQC

Image Source: Professor William Buchanan, University of Edinburgh

14. “How soon do MSPs need to be thinking about cryptographic agility?”

- MSPs need to be thinking about Cryptographic Agility RIGHT NOW. In fact, the experts as saying that all initial PQC Migration Projects MUST be coupled with Cryptographic Agility Projects that are conducted simultaneously.
- References:
  - ***RFC 7596*** https://www.rfc-editor.org/rfc/pdfrfc/rfc7696.txt.pdf
  - ***Becoming Quantum Safe***, by Jai Singh Arun, Ray Harishankar, and Walid Rjaiibi, 2025,

Cryptographic Agility *is a measure of an organization's ability to adapt cryptographic solutions or algorithms (including their parameters and keys) quickly and efficiently in response to developments in cryptanalysis, emerging threats, technological advances, and/or vulnerabilities.*

It is also a design principle for implementing, updating, replacing, running, and adapting cryptography and related business processes and policies with no significant architectural changes, minimal disruption to business operations, and short transition time.

- Design principle
- Adapt to ANY future threats to cryptography
- Minimal disruption to business

Good old exit plans, no more set and forget in cryptography

Source: NIST ay the PCI Consortium Conference January 2025.

15. “How can MSPs use future risk education — like 2038 and quantum — to position themselves as trusted advisors instead of commodity IT providers?”

- MSPs must understand the nature and realities of the Year 2038 Problem and the Post-Quantum Cryptography Threats, and the strategic plans and tactical seps required to remediate these, using limited resources, and then formulate methodologies that can be applied to their customers to provide these crucial remediation services.
- The Year 2038 Problem and the Post-Quantum Cryptography Threats will NOT go away if we ignore them.
- In particular, regulatory requirements are going to happen for organizations to perform Post-Quantum Cryptography Threat remediation. Much of the pressures to fix these issues is already in play.

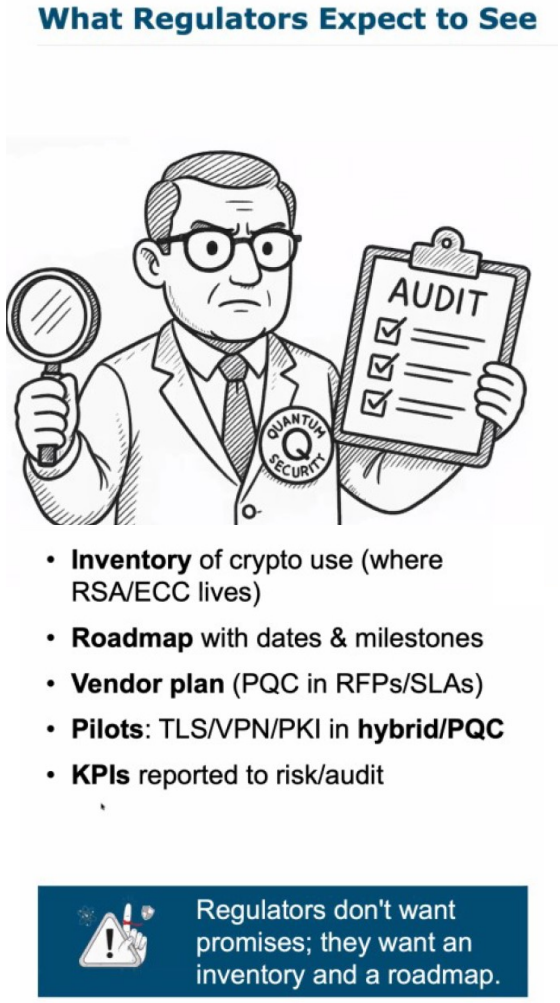


Image Source: Marin Ivezic, Quantum Security Awareness, Applied Quantum, LLC

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16. “What mistakes do you see MSPs making when it comes to long-term planning?”

- Failure to realize:
  - The time required for these remediation projects. PQC Migration Projects can take 3 to 7 years.
  - Q-Day could be here s early as 2028, or as late as 2030.
  - There is an extremely limited pool of talented people who can perform and/or manage these remediation projects.

17. “What’s one mindset shift MSP owners need to adopt going into 2026 and beyond?”

- Actually two mindsets shifts:
  - Q-Day gets closer every day
  - There is a serious shortage people who and work on and manage PQC Migration Projects.

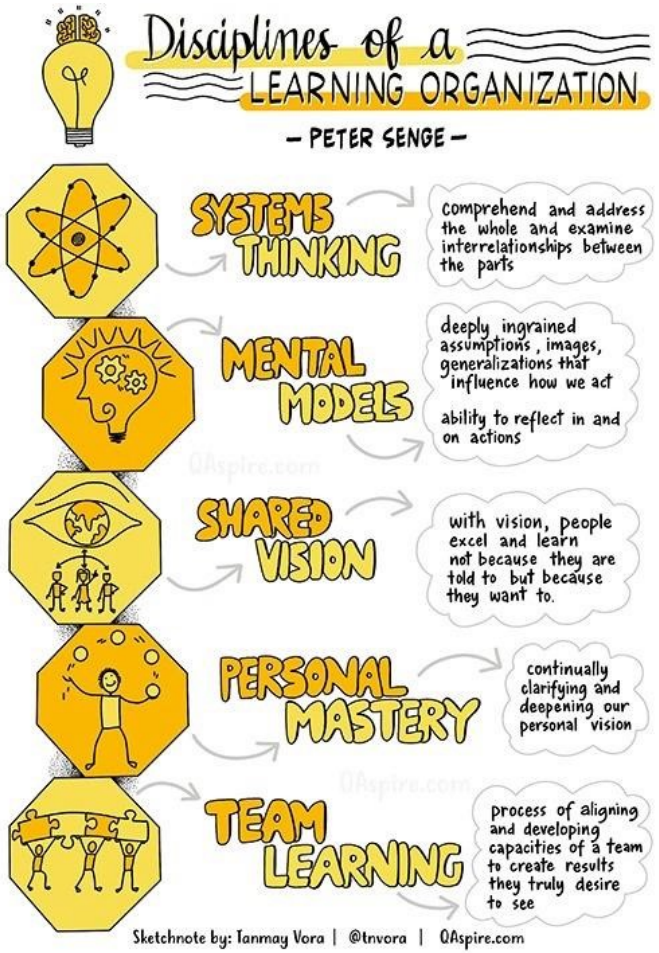
1. Cryptography & PQC Knowledge
2. Systems Engineering & Architecture
3. Security Engineering & PKI
4. PQC Migration
5. Software & Systems Integration
6. Database Skills
7. Network & Infrastructure
8. Cloud, DevOps, and Automation
9. Compliance & Standards Awareness
10. Testing
11. Custom Tools
12. Risk Management
13. Soft Skills

18. “If an MSP owner is listening right now, what are the top three actions they should start taking this year to future-proof their business?”

- **<u>PQC, CryptographicAgility, and HNDL:</u> Prepare to perform top quantity projects in CryptoAgiliity and PQC, because “ Q-Day “ is one day closer every day. And temember to prepare for “ Harvest Now, Decrypt Later “.**

- **<u>Leadership & TeamWork:</u> Revamp your organizations using the Peter Senge Learning Team Disciplines. There are FIVE: Personal Mastery, Shared Vision, Team Leaning, Mentall Modeling, and Systems Thinking. This set of disciplines is the best way to equip your Team members to manage this era of exponential change and competition.**

- **<u>Reachability:</u> Have every member of your organization make themselves available with an e-mail address (primary & secondary) and a phone number, and require it in the e-mail signature blocks. Your greatest ability, is your AVAILABILITY.**

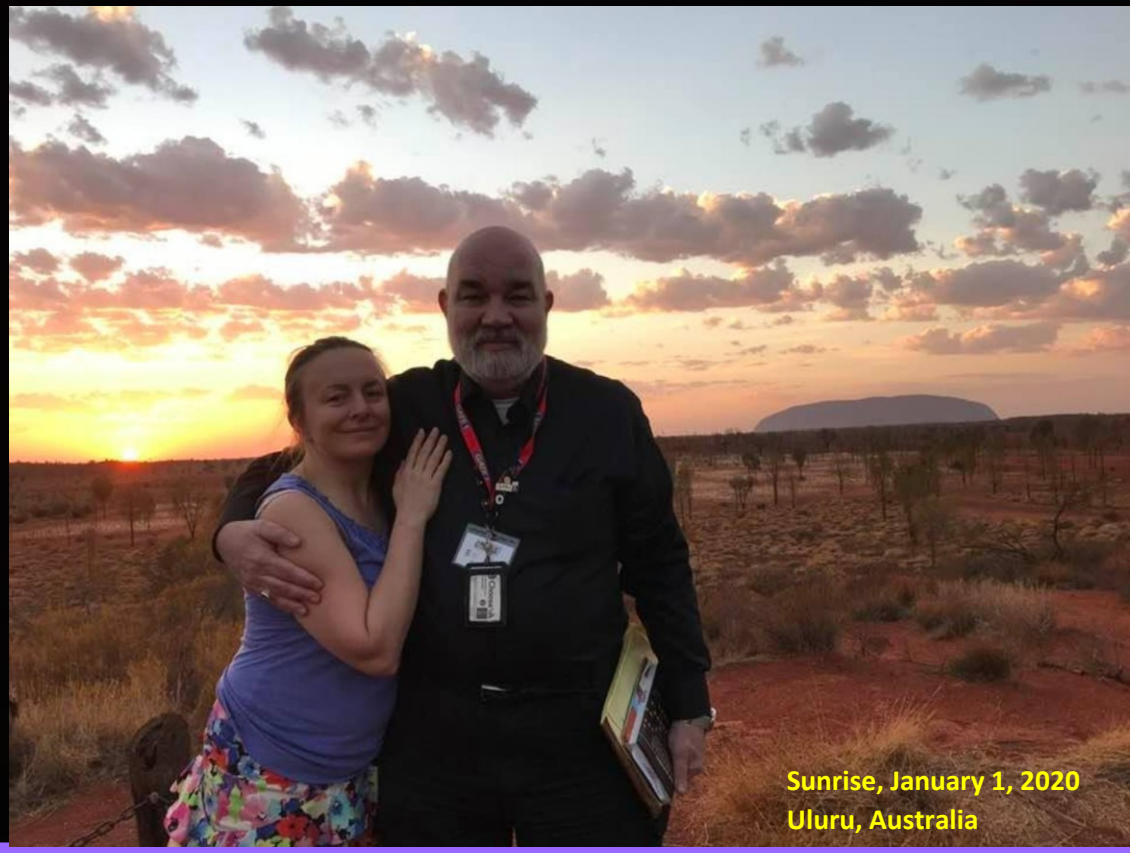


Podcast: Questions and Answers

Podcast

About Me

1. E-Mail williamslater @ gmail.com
2. Phone 1-312-342-2626
3. CEO and owner of Slater Technologies, Inc. (since 1989)
4. In Quantum since 2011
5. PQC training and Projects since January 2025
6. Started in Cybersecurity in the U.S. Air Force: 1977.
7. Former U.S. Air Force Computer System Staff Officer who served at Strategic Air Command HQ.
8. Programming Languages: 43
9. 3 Graduate Degrees
   - MS Computer Information Systems
   - MBA
   - MS Cybersecurity
10. 88 Certifications including CISSP, SSCP, CISA, PMP.
11. Certified Project Manager with over 25 years experience.
12. Born and Raised in Memphis, Tennessee
13. Lives and works in Chicago, Illinois, USA
14. Published Author: https://billslater.com/writing
15. Working with QSECDEF since September 2024.
16. Happily married to Joanna Roguska since December 2000.
17. Actively working on PQC Migration Projects
18. Avid fan of Andreas Vollenweider Music (since 1985), Chess (since 1964), and Judo (since 1968).
19. Voracious Reader with 18,000 physical books and 8000 digital books.
20. Meyers-Briggs: INFP.
21. Non-Denominational Christian (since 1973).

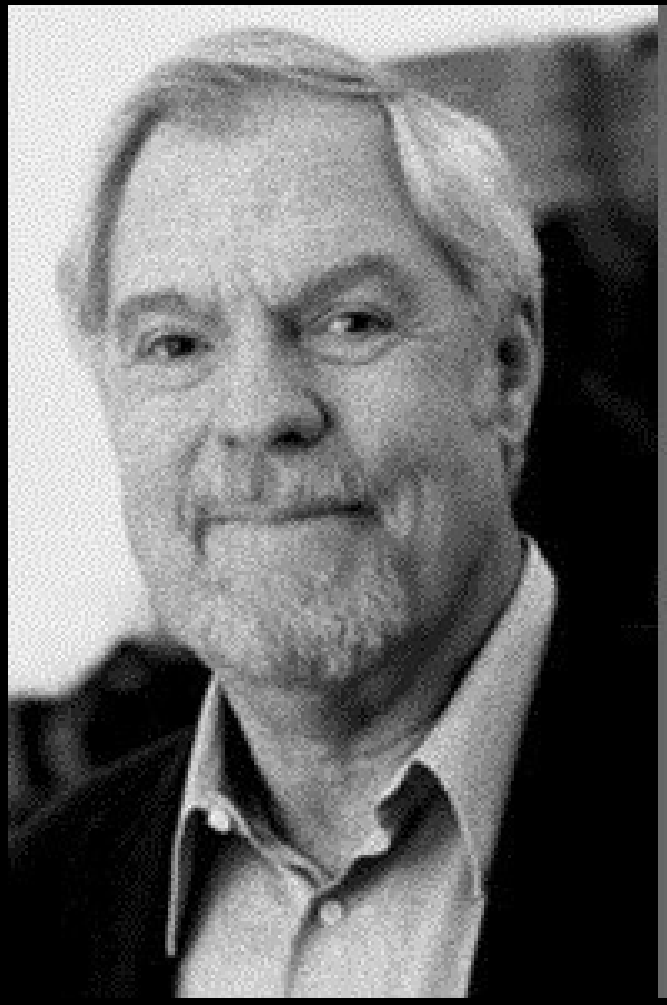


Sunrise, January 1, 2020
Uluru, Australia

Stockdale Paradox

You must never confuse faith that you will prevail in the end -- which you can never afford to lose -- with the discipline to confront the most brutal facts of your current reality, whatever they might be.

Admiral James B. Stockdale



"One of life's most painful moments comes when we must admit that we didn't do our homework, that we are not prepared."

Merlin Olsen

I have learned that people will forget what you said, people will forget what you did, but people will never forget how you made them feel.

Maya Angelou
1928-2014

Photo by Michael Collopy

Supplemental Slides

Quantum References

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THE MAP OF QUANTUM PHYSICS

DOMAIN OF SCIENCE

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PRE-QUANTUM MYSTERIES

ATOMIC SPECTRA

BLACKBODY RADIATION

INTENSITY

WAVELENGTH

THE STABLE ATOM

PHOTOELECTRIC EFFECT

RADIOACTIVITY

QUANTUM FOUNDATIONS

THE WAVE FUNCTION

PARTICLE-WAVE DUALITY

THE BORN RULE

INTERFERENCE PATTERN

DOUBLE SLIT EXPERIMENT

THE SCHRÖDINGER EQUATION

$$i\hbar\frac{\partial}{\partial t}\Psi(\vec{r},t) = -\frac{\hbar^2}{2m}\nabla^2\Psi(\vec{r},t) + V(\vec{r})\Psi(\vec{r},t)$$

THE DIRAC EQUATION

$$i\hbar\gamma^\mu\partial_\mu\psi - mc\psi = 0$$

THE HEISENBERG UNCERTAINTY PRINCIPLE

DEFINITE POSITION

DEFINITE MOMENTUM

BELL'S THEOREM

CORRELATION

ENERGY QUANTIZATION

HIGHER ENERGY

INTERPRETATIONS OF QUANTUM MECHANICS

COPENHAGEN

WAVE

PARTICLE

THE MEASUREMENT PROBLEM

PILOT WAVE

MANY WORLDS THEORY

QBISM

CONSISTENT HISTORIES

AND MANY OTHERS...

TRANSACTIONAL INTERPRETATION

STOCHASTIC INTERPRETATION

QUANTUM DARWINISM

COSMOLOGICAL INTERPRETATION

ALTERNATIVE COLLAPSE

QUANTUM GRAVITY

M-THEORY

STRING THEORY

LOOP QUANTUM GRAVITY

QUANTUM PHENOMENA

QUANTUM SPIN

PARTICLE PROPERTIES

POSITION

SPIN (INHERENT ANGULAR MOMENTUM)

MOMENTUM

MASS

COLOUR CHARGE

FLAVOUR

ELECTRIC CHARGE

BARYON NUMBER

WEAK HYPERCHARGE

LEPTON NUMBER

LEPTON FAMILY NUMBER

SUPERPOSITION

QUANTUM NUMBERS

SCHRÖDINGER'S CAT

ENTANGLEMENT

DECOHERENCE

QUANTUM TUNNELING

QUANTUM HALL EFFECT

SUPERCONDUCTIVITY

SUPERFLUIDITY

COOPER PAIRS

CASIMIR EFFECT

TOPOLOGICAL PHASE TRANSITIONS

LOWER TEMPERATURE

HIGHER TEMPERATURE

PHASE TRANSITIONS

TEMPERATURE

QUANTUM CRITICAL REGIME

SUPERCONDUCTOR

NORMAL METAL

MAGNETIC FIELD

ZERO-POINT ENERGY

QUANTUM THEORY

POSTULATES (PARAPHRASED)

1. WAVE FUNCTION DETERMINES EVERYTHING
2. ALL OBSERVABLES HAVE OPERATORS
3. OBSERVABLES ARE HERMITIAN
4. EIGENFUNCTIONS OF OPERATORS ARE INDEPENDENT
5. EXPECTATION VALUE INTEGRAL
6. TIME DEPENDENT SCHRÖDINGER EQUATION

PATH INTEGRALS

A

B

QUANTUM FIELD THEORY

SYMMETRIES

HILBERT SPACE

PARTICLE PHYSICS

QUANTUM CHROMODYNAMICS

STRONG FORCE

ELECTROWEAK INTERACTIONS

ELECTROMAGNETISM + WEAK FORCE

γ W^- W^+ Z^0

QUANTUM ELECTRODYNAMICS

QUANTUM INFORMATION

QUANTUM CRYPTOGRAPHY

QUBITS

0

1

QUANTUM COMPUTING

QUANTUM SIMULATION

QUANTUM TELEPORTATION

BELL-STATE ANALYSER

CLASSICAL SIGNAL

ENTANGLED PHOTONS

QUANTUM COMMUNICATION

QUANTUM INTERNET

QUANTUM COMPLEXITY COMPUTATIONAL COMPLEXITY

P SPACE

NP PROBLEMS

NP COMPLETE

P PROBLEMS

BQP

FEYNMAN DIAGRAMS

ANTI-MATTER

PROTON

ANTI-PROTON

P

$\bar{P}$

THE STANDARD MODEL OF PARTICLE PHYSICS

QUARKS

u c t d s b

GAUGE BOSONS

γ g H Z W

THE HIGGS BOSON

LEPTONS

ν_e e ν_μ μ ν_τ τ

PARTICLE ACCELERATORS

SOLID STATE DEVICES

BAND THEORY OF SOLIDS

N-TYPE

P-TYPE

HOLES

ELECTRONS

TRANSISTORS

SOURCE

GATE

DRAIN

N-TYPE

P-TYPE

SOLAR PANELS

QUANTUM TECHNOLOGY

LIGHT EMITTING DIODES

POSITIVE TERMINAL

NEGATIVE TERMINAL

SUPERCONDUCTING MAGNETS

S.Q.U.I.D.S

JOSEPHSON JUNCTION

LASERS

CHARGE-COUPLED DEVICES

CCD SENSOR

ATOMIC CLOCKS

ELECTRON MICROSCOPES

SCANNING TUNNELING MICROSCOPES

ATOMIC FORCE MICROSCOPES

NUCLEAR MAGNETIC RESONANCE IMAGING

MAGNETIC RESONANCE IMAGING

CONDENSED MATTER PHYSICS

QUANTUM BIOLOGY

PHOTOSYNTHESIS

BIRD NAVIGATION

SENSE OF SMELL

ENZYMES

COLD ATOM PHYSICS

DEGENERATE ULTRACOLD GASES

DEGENERATE FERMI GAS

BOSE-EINSTEIN CONDENSATE

RYDBERG MATTER

QUANTUM CHEMISTRY

ELECTRONIC STRUCTURE

MOLECULAR DYNAMICS

QUANTUM MONTE CARLO METHODS

NUCLEAR PHYSICS

NUCLEAR FISSION

NUCLEAR FUSION

RADIOACTIVE DECAY

ALPHA DECAY

BETA DECAY

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GAMMA DECAY

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