GEORGE V. MAVROUDES

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OBJECTIVE

To present an overview of 25 years of technological accomplishments and to be considered for a Solution Architect Role responsible for the successful expansion, design, delivery, and implementation of multi-cloud solutions that will expand business capabilities and services across the enterprise including but not limited to computing services across the cloud and on-premises including servers, databases, storage, networking, analytics, software, intelligence.

Committed to delivering architectures that will enable applications achieve high availability, performance, reliability and security while delivering the means for user-driven reporting and analytics capabilities. As a member of the technical team I have the experience and knowledge to direct application project teams to develop the end-to-end solution architecture, including application, data, integration, security, and infrastructure domains using a variate of target patterns which have historically produce successful results all the while maintaining clarity and simplicity to the overall project solution.

Working closely with the Company's leadership will ensure the technology architecture aligns with the business vision and direction. Ability to oversee IT application risk analysis and mitigation planning incorporating Asset Management, Security, and Infrastructure domain. Ability to identify and plan projects for application modernization/migration with the scope of reducing legacy platform dependency and technical debt.

Knowledge and experience in building Prototypes and Proof of Consepts with the focus on next generation products. Experience in formalizing enterprise direction and standards and working within The Open Group Architecture Framework to produce, retain and catalog reference architectures that pave the way to a repeatable process improvement model.

PROFESSIONAL EXPERIENCE (TIMELINE)

07/2016-07/2023 *Senior Software Consultant and Technical Lead*
ViewSoft Inc - AgileThought / PriceWaterhouseCooper – Tampa, Florida

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At PwC I have contributed to multiple products such as Extract, Content Editor Tool (CET), Travel Manager, Global Distributed API (GD API), Engagement Management Site (EMW Web), Engagement Management API (EMW API) and spent most of my time on ClientBase (CB Web), ClientBase API a project which I originally prototyped and implemented.

ClientBase is a multi-region N-Tier classic architecture design which started off on-premises and at

it's tail end migrated into Azure N-Tier Cloud architecture. Originally developed on premises and migrated to Azure Cloud. The final deployment used multiple Azure Virtual Machines for each tier. Traffic manager was deployed in front of the Web Tier. The three tiers were separate Azure virtual networks peered through Azure Load Balancers. The three tiers were Web, Application and Backend. ClientBase had many integration points with other PwC products such as Aura, Connect Audit Manager (CAM), Connect, Count, Engagement Management Website (EMW), Admin Web Services Controller (AWS Admin). Used OpenIdConnect using PwC Identity over OpenAM. Implemented implicit Oauth 2.0 grant and code flows.

Web was originally built in Angular and later on rebuilt using ReactJS, Redux, Axios and other Typescript libraries. API's used IIS hosting with C# .NET Core and Framework. Swagger was used during development for testing the API Endpoints.

Prior to the completion of the project I lead an effort to build an automation layer built into ClientBase. At every step of the way the data and all communication over the wire was secured using Claims Base Authentication over OAuth.

Technologies C#, ASP.NET Web. ASP.NET Core, Visual Studio 2017-2022, Angular 4, React 11, Typescript 2, MSSQL Server 2012-2016.

06/2011-07/2016 *Lead Technical Architect (Partnership Integration)*
American Express / Serve Enterprises – St. Petersburg, Florida

Serve Enterprises (www.serve.com) is a wholly owned subsidiary of American Express. Serve is a payments platform emerging from a Service Oriented Architecture (SOA) supporting peer to peer payments, card linkage, real time transaction processing and more. I was originally a contractor transitioned into a Technical Lead (Core and Card Authorization Services) role and following that transitioned into a Lead Technical Architect (LTA) for Partnership Integrations. On a day to day basis I am involved in many facets of the rapidly growing platform. The platform implementation is based on MVC 3.0 over IIS6/IIS7, WCF in C# .NET 4.0 and Oracle 11g, Release 2 database. Version control and document management using Team Foundation Server, and SharePoint Portal.

In my current role I provide architecture solutions, and secure software designs supported by deep involvement into their implementations. Oversight on all aspects of security, scalability, flexibility, maintainability, and reliability as required by the enterprise platform.

- SoftCard Contactless Integration
  - Implemented the secure processing of SoftCard Single Sign-On feature and the integration with Microsoft AppFabric in support of this feature.
  - Created Simulation Server and Unit Tests
  - Provided Technical Oversight on implementation
- Carrier Data Integration
  - Architecture, design and implementation of data integration from mobile network providers with transport and custom message level security implementation for ensuring privacy and non repudiation.

    - N-Tier implementation with external, internal, and third party service layers.
    - Replay detection and multiple factor Authorization and Authentication coupled with mobile SMS pin code.
- Green Dot / MoneyPak
    - WCF Client/Service Implementation
    - Design and Implementation of Load Testing Client
    - GreenDot Service Simulator
    - GreenDot Engineering Simulator
    - Integration into the Serve Payments Platform
    - Health Monitoring Implementation and Integration with Network Operations Center
- Real time Card Transactions, Authorization and Pass Through using Serve Cards
    - Real time online transaction processing over WCF service
    - Merchant Transactions and Bill My Phone Transactions
    - Pass Through Transaction support over Moneris and Amex
- Global Network Service Gateway
    - ISO8583 Message Processing Implementation
    - Interface to authorization engine over WCF service
- Serve Checkout
    - Merchant Transactions
    - Bill My Phone Transactions through Payfone Client Endpoint
- Payfone Client Endpoint Implementation for Carrier Billing with Verizon
    - WCF Service using SSL and Signature Certificate Credentials
    - Custom Binding utilizing MutualCertificateDuplex Authentication mode
- Online Transactions and Online Pass Through Transactions
    - Moneris Integration And Implementation
        - Visa
        - MasterCard
        - Discover
    - Amex Integration And Support
- Negotiation Management for Peer to Peer Payments
- Implemented International Swipe originally intended for BlueBird card, and later on used by Serve Card
- Implemented a multi-thread integration solution with the hardware security module (HSM) and improved processing from an average of 9 cards per second to an average of 160 cards per second and a max of 189 cards per second in the production of CSC and Pin block values.
- Implemented CryptoProvider wrapper to ensure privacy and non-repudiation using Certificates (public key encryption) and Signature Verification.
- Successfully executed replay attack on a published product which later on was withdrawn from market.
- Splunk Logging and Monitoring (Unified and Indexed Logging)
    - Produce detailed dashboards reporting Retail card success.
- Release Configuration Support and Integration over multiple environments
    - DEV (Continuous Integration)
    - QA (Quality Assurance testing)
    - UAT (User Acceptance Testing)

- STAGING (Release ready for prime time)
- PRODUCTION (Production – Live Transaction Processing)

08/2007-05/2011 *Software Design Engineer*
The Technical Committee (TheTC) – Bellevue, Washington

- Based on guidelines received at the end of this contract I can state the following information: I worked on a contract basis for the Technical Committee. The Technical Committee was established to assist the United States and a group of states in overseeing the settlement in the antitrust case against Microsoft.
- The general nature of my responsibilities at the TC included but was not limited to reviewing the communications protocol documents written by Microsoft to comply with the settlement. Furthermore, I would identify issues with the documentation, submit those issues to Microsoft and continue to work with Microsoft to resolve those issues.
- I was part of the prototyping team. Prototyping was another method we used to test the quality of the documentation and consisted of creating prototypes implementing the protocols using the documentation, which led to the identification of issues with the documentation.
- I designed, managed and developed custom client/server software using software patterns. The protocol specification dictated the transport. Protocol transports such as TCP/IP, UDP/IP, PPP, HTTP, HTTPS, and L2TP were used. Used multi-threading on Windows and Linux to enhance performance. To identify deeper issues rooted in the platform some solutions would be ported from Windows to Linux. Created and executed test plans and unit tests to verify the correctness of the software. Provided support for other engineers on protocols which I was the lead. Worked in small teams and individually to develop solutions and to correct issues. I researched and investigated protocol dependencies and interactions associated to the protocols I was assigned. Used C/C++/C# and Bash for software development and Subversion for source control. Used Visio for class diagrams, use cases, state diagrams, deployment diagrams, and sequence diagrams.
- I worked on many protocols not shown below. The ones given below were my primary responsibility and throughout my time with the TC I was the lead engineer responsible for them:
  [MS-AIPS]: Authenticated Internet Protocol Specification
  [MS-CHAP]: Extensible Authentication Protocol Method for Microsoft
  Challenge Handshake Authentication Protocol (CHAP) Specification
  [MS-FASP]: Firewall and Advanced Security Protocol Specification
  [MS-IKEE]: Internet Key Exchange Protocol Extensions
  [MS-L2TPIE]: Layer 2 Tunneling Protocol (L2TP) IPSec Extensions
  [MS-OCSP]: Online Certificate Status Protocol (OCSP) Extensions
  [MS-OCSPA]: Microsoft OCSP Administration Protocol Specification
  [MS-PEAP]: Protected Extensible Authentication Protocol (PEAP) Specification
  [MS-PKCA]: Public Key Cryptography for Initial Authentication (PKINIT)
  in Kerberos Protocol Specification
  [MS-PTPT]: Point-to-Point Tunneling Protocol (PPTP) Profile
  [MS-SSTP]: Secure Socket Tunneling Protocol (SSTP) Specification
  [MS-WUSP]: Windows Update Services: Client-Server Protocol Specification

- Technologies Used:
  Languages: C/C++, C#.NET, Java, Bash
  Source control: Subversion
  Tools: Visual Studio 2008, Mono Develop, Visio, Vim, make, VMware, RealVNC, Apache Web Server
  Platforms: Windows XP, Windows Vista, Windows 7, Windows 2008 Server, Windows 2008 Server R2, Red Hat Enterprise Linux 5, Ubuntu Linux

04/2003-06/2007 *Research & Development Senior Software Engineer / Architect*
Fortress Technologies Inc. - Tampa, Florida
Wired & Wireless Security Solutions

- Prototyped and implemented MeshViewer application using Visual Studio 2005 and C# .NET Framework 2.0 GUI. Custom controls, User Controls, Graphic regions implemented using GDI+. Drag-and-Drop of C# Custom Controls. Design and implementation of Multi-Threaded Logging to ListView and Windows Event Viewer simultaneously. C# WinForms Menus, Status Bar, Toolbars, Tooltips. C# use of split container allowing user to collapse panels. Docking, Anchoring and Resizing of C# WinForms and Containers. C# background thread implementation for UI incremental and full client area invalidation over 3 seconds, 12 seconds, and 30 seconds. C# IPv6 Support for listening to a multicast protocol which was the main source of information for the MeshViewer. Document Printing with mixed Text and Graphics, implementation of Print Preview.
- Prototyped Next-Generation Web GUI using Apache 2.2.3/C with OpenSSL, PHP 5.0, mod_ssl, and experimental SOAP extension C. Created Fortress Apache Module in C++ for fine tuning and handling of HTTP requests over SSL. Win32-x86 platform.
- Implemented OCSP (Online Certificate Status Protocol) for PKI (Public Key Infrastructure) support added to MaPS Server in C++
- Maintain SOAP based, GUI Client written in Java and C++ MaPS (Management and Policy Server). MaPS is an asynchronous server which utilizes Windows completion ports and overlapped I/O with a built-in preemptive priority Scheduler supported by a Dispatch Manager, an Event Manager, a Thread based priority queue, a Memory Manager with full implementation of reference counting on all objects inheriting from the base object CMaPSBaseObject class, a Profiler, a Log Server and Client, an AES encrypted SQLite based Database with Failover support to a Standby MaPS, a RADIUS server, and Authentication server that can authenticate against local Database, LDAP, RSA Secure ID, External RADIUS, PKI Certificates, and finally an SNMP Agent implemented using Net-SNMP libraries. Distinct separation in layer 3 and layer 4 of the OSI reference model by defining a Transport, and a Session Layer Manager.
- Java JDK 5.0 - GUI experience using Swing, Apache-Axis for SOAP communication between the front end and the C++ backend-MaPS, XML formatting of SOAP messages.
- Java NetBean – Absolute position layout manager. Java Custom controls (DatePicker, IpAddress, and PasswordPair). Apache Log4j – Java logging.
- Apache Jakarta - Java Commons Collections Framework, Java HTTPClient for Authentication/Login over HTTPS, JAX-RPC for SOAP serialization/de-serialization of messages with attachments. Java Eclipse 3.1.1 – IDE for debugging and development.

- SQL Referential Integrity and Cascading-Updates/Deletes through Primary Key - Foreign Key Constraints. Create/Alter SQL Views, Identity/auto-increment type fields as primary keys.
- Apache Configuration with OpenSSL, mod_ssl, mod_php including an RPC server within a PHP extension module to get and set data from Databackplane repository. Platform Linux-Dual MIPS Architecture
- GDB helper functions to display a given buffer as ARP or IP (TCP/UDP) packet using .gdbinit for Linux
- System Architect and Implementer of Guest Management System to support Guest, Trusted, 802.1x and Hotspot VLAN Clear Text Clients within an Encrypted Secure Network, Linux platform
- Design and implementation of a support system for a packet filtering engine using STL on Linux x86 platform
- Design and implementation of Push Technology, of Private Key within a Symmetric Crypto system on Linux platform.
- System Architect for a multithreaded Live Update Win32 Server Supported by Live Update Agents (Win32, Linux), and a loosely coupled User Interface Win32 Forms. Win32 UDP/IP broadcast and TCP/IP reliable connection after acknowledgment.

10/2000-09/2002 *Research & Development Software Engineer*
Paradyne Corporation - Largo, Florida

- Development and maintenance of components associated with 8335 SDSL /8365 ADSL /8385 SHDSL ATM Portcards and Hotwire 87xx TDM SDSL/G.SDSL. C / C++ low level programming. ClearCase and PVCS version control systems. CleartDDTS bug tracking system.
- Debugging was done using RS232 external cable from Sun UltraSPARC systems. Firmware uploads using TFTP protocol. Double flash banks were used for upgrades. Text based UI.
- SNMP and MIB design and development for device management.
- Firebird equipment were used to validate / generate network traffic
- Devices could be configured using Bootp or using static IP address
- Processor architecture RISC.
- Target operating system Yamos

08/1999-10/2000 *Research & Development Software Engineer*
Minolta-QMS Corporation - Mobile, Alabama

- Development, release, and maintenance of components associated with color laser printers. Programming using C on SunOS. Product name Magicolor & Magicolor 2CX. ClearCase version control system. Programming in C.
- Soft real time operating system CEXEC. Target processor MIPS R4xxx.
- PostScript, PCL, and HPGL emulations and support.
- Target management through RS232 and Web interface. Accounting for consumables and 2D graphics for visualization.

- Network support for Bootp over Ethernet, and printing over Ethernet.
- Printing support over parallel port

TEACHING EXPERIENCE (TIMELINE)

2003-2007 Adjunct Instructor
Florida Metropolitan University – Tampa, Florida

04/2007-07/2007 Programming Windows With VB.NET I & II
08/2005-11/2005 2005 – 2007, "Programming in Visual Basic .NET", McGraw-Hill/Irwin, ISBN
04/2005-07/2005 0-07-226215-X
10/2003-01/2004 2003 – 2005, "Visual Basic .NET, How to Program", Deitel & Associates, Inc. © 2002, ISBN: 0130293636

- Designing User Interfaces and User Controls
- Passing Formal, (value type, and reference type), Parameters to Functions: By-Value (ByVal), and By-Reference (ByRef)
- Object Oriented Programming Using .NET Framework
- Me Reference, Abstract Classes, Shared Class Members
- Abstraction, Inheritance, Encapsulation, Information Hiding, Polymorphism, Event Handling
- NotInheritable, NotOverridable methods
- Exception Handling with Try / Catch / Finally Block
- Visual Inheritance
- String Manipulation in .NET: String, StringBuilder
- File/Directory Structure, Sequential, and Random Files

2005-2007 Adjunct Instructor
Florida Metropolitan University – Tampa, Florida

01/2007-04/2007 Building Secure Software
01/2006-04/2006 "Building Secure Software – How to Avoid Security Problems the Right
07/2005-10/2005 Way", John Viega & Gary McGraw, ISBN 0-201-72152-X, Copyright 2002 by
01/2005-04/2005 Addison-Wesley.

- Intro to Security, Prevention, Traceability and Auditing, Monitoring, Privacy and Confidentiality, Multilevel Security, Anonymity, Authentication, Integrity
- Software Engineering (i.e. Spiral Model) and Software Security through Risk Management, Brief view Common Criteria
- Programming Languages, Operating Systems and Technologies
- Distributed Object Platforms (CORBA, DCOM, EJB over RMI)
- Open Source Software Vs Closed Source Software
- Pseudorandom Number generators
- Symmetric Vs Asymmetric Cryptography

- Message Authentication Codes
- Block Ciphers Vs Stream Ciphers
- Cipher Modes and IV options
    - (ECB) Electronic Code Book Mode
    - (CBC) Cipher Block Chaining Mode
    - (OFB) Output Feedback Mode (Stream Cipher)
    - (CFB) Cipher Feedback Mode (Stream Cipher)
- Using OpenSSL for Cryptography, and MAC

2004-2007 Adjunct Instructor
Florida Metropolitan University – Tampa, Florida

10/2006-01/2007 Operating Systems
10/2005-01/2006 "Operating Systems, A Systematic View >> Sixth Edition", William S. Davis
10/2004-01/2005 & T. M. Rajkumar, ISBN 0-321-26751-6, Copyright 2005 Pearson Education,
07/2004-10/2004 Inc.

- OS Concepts, Abstraction, Layering, Platforms
- Hardware/Software Interfacing
- Multiprogramming and Multithreading
- Physical and Virtual Memory
- Absolute and Relative Memory Addressing
- Static and Dynamic Libraries
- Single and Multiple Bus Architectures
- Logical and Physical I/O
- The Boot Process
- The Virtual Machine Concept
- Intro to specific implementations: Windows XP, Mac OS X, Linux

2005-2006 Adjunct Instructor
Florida Metropolitan University – Tampa, Florida

07/2006-10/2006 Database Application Development
07/2005-10/2005

"Database Access With Visual Basic .NET", Jeffrey P. McManus, Jackie Goldstein, and Kevin T. Price, ISBN 0-672-32343-5, Copyright 2003 by Pearson Education

- Relational Database and Normalization
- Relations: One-To-One, One-To-Many, Many-To-Many
- Database Indexes Vs Primary Keys, Foreign Keys
- Referential Integrity (Cascading updates, deletes)
- SQL Commands (Using the SQL Query Browser)
    - Data Definition Language, and
    - Data Manipulation Language
- MS SQL Server 2000 (Preparation and Administration)

- VB.NET Data Providers (SQL Server, ODBC, OLEDB)
- Using DataAdapter with DataSet and DataReader

07/2003-10/2003 Adjunct Instructor
Florida Metropolitan University – Tampa, Florida

Programming Windows With Visual Basic 6.0

- Programming Concepts
- Windows Forms / GUI Design
- Read/Write Sequential, and Random Files
- User defined types / Common Dialogs
- Printing formatted output using a printer.

04/2003-07/2003 Adjunct Instructor
Florida Metropolitan University – Tampa, Florida

Programming Windows with Visual C++ 6.0 & MFC

- Document/View Architecture, Dialogs and Controls
- Messages / Commands / Serialization
- Drawing / Printing / Print Preview
- Property Pages in Property Sheets OR Wizards

INTERNSHIP EXPERIENCE

11/1996-04/1998 Minolta - QMS Co., *Department of Systems Administration*

08/1997-11/1997 Minolta - QMS Co., *Department of Embedded Software*

EDUCATION

06/1996–12/1998 *Master of Science* - **Computer Science**
University of South Alabama, Mobile, Alabama

12/1993–06/1996 *Bachelor of Science* - **Civil Engineering**
University of South Alabama, Mobile, Alabama

09/1987–11/1990 *Associate Degree* - **Civil Engineering**
Higher Institute of Technology, Nicosia, Cyprus

AWARDS, CERTIFICATIONS, AFFILIATIONS & PROFESSIONAL DEVELOPMENT

08/2023 *AZ-305 Microsoft Certified: Azure Solutions Architect Expert*
Credential ID: 40083DD32944C47F

07/2023	*AZ-104 Microsoft Certified: Azure Administrator Associate* *Credential ID: 3080B9ADB71D608*
05/2014	*Chairman's Award for Innovation for the American Express Serve Retail Launch*
05/2003	*Professional Member, Association Of Computing Machinery*
02/2003	*Microsoft Certified* C#, .Net *Windows Development* (70-316)
05/1998	*Graduate Student Fellowship Award,* Association Of Computing Machinery
05/1997	*Graduate Student Fellowship Award,* Association Of Computing Machinery

COMPUTER SKILLS

Process and Architecture Frameworks

CMMI, The Open Group Architecture Framework, Zackman

Architecture Methodologies, Cloud, Data and Integration Patterns

Ambassador (Azure API Management), Anti-corruption Layer (Azure API Management, Azure Logic Apps), Asynchronous Request-Reply (CRUD Async API's), Backends for Frontends, Bulkhead (Dependent component Isolation), Cache-Aside (Redis for dynamically changing content, CDN for non changing content), Choreography (Aggregate and Compose Decision Making), Circuit Breaker, Retry, Reference based Messaging or Claim-Check, Compensating Transaction (Multi-step transaction that can be reversed), Competing Consumers (Azure Functions, Azure Service Bus), Compute Resource Consolidation (Azure App Service, Kubernetes), Command and Query Responsibility Segregation, Deployment Stamps, Edge Workload Configuration, Event Sourcing (Bookings), External Configuration (Azure Vault), Federated Identity (Azure AD, AD FI), Gatekeeper (Firewall), Gateway Aggregation (Azure Traffic Manager), Gateway Offloading (Azure Application Gateway), Gateway Routing (Azure Application Gateway, Azure API Management), Geode (Azure Cosmos DB), Health Endpoint (Azure Monitor, Azure App Service), Index Table (SQL Server), Leader Election (HDInsight – Leader for collaborating nodes is the coordinator), Materialized View (Data flows), Pipes and Filters (Azure Factory), Priority Queues (Azure Service Bus), Publish and Subscribe (Event Hubs, Event Grid, Service Bus), Queue Based Load Leveling (Service Bus), Rate Limit (Azure), Sharding (SQL Server), Sidecar (Azure Containers, Kubernetes), Strangler (Azure Migrate), Throttling (Azure), Valet Key (Azure Storage), MapReduce (Hadoop), Elasticity (Azure Scale Sets, Azure SQL Elastic Pools), TOGAF, Big Compute, Big Data, Microservices, N-Tier Enterprise,

Cloud Technologies

IaaS, SaaS, FaaS, DaaS, Azure AD, Azure Proxy, Azure AD Connect, Azure Express Route, Azure Storage, Azure Virtual Networks (VNets, NSGs, ASGs, Subnets), Azure Private Endpoints, Azure Firewall, Azure Load Balancing, Azure Application Gateway, Azure Front

Door, Azure Traffic Manager, Azure Provisioning, Azure Enterprise Applications, Azure Authentication and Authorization, Azure Data Factory, Azure Event Hub, Azure Event Grid, Azure Network Watcher, Azure Monitor, API's , SwaggerUI, Web Development, Azure Containers and Kubernetes

Operating Systems
Windows, Unix, Ubuntu Linux, SunOS, Red Had Enterprise Linux, FreeBSD

Programming Languages
C#.NET, ASP.NET, T-SQL, Stored Procedures, HTML, Perl, Tcl/Tk, Expect, Bash Shell, XML, XSD, Angular, React, Typescript, GNU C, Visual C++ (OOP), PhP, Python, PowerShell, VB.NET, Java Servlets, Java Server Pages (JSP)

Version Control Systems & Debuggers
Visual Studio Teams Services (VSTS), TFS, Perforce, Subversion, ClearCase and ClearDDTS, Source Safe, PVCS, WinCVS, Visual Studio 6.0, Visual Studio .NET 2003/2005/2010/2022, Sun One Studio, Eclipse, Install Shield, WinDBG, Gdb, Gdb over DDD, Single Step, HP MasterWorks, Gdb over Tornado, SoftIce

Web Servers, Protocols, Databases, Software Design and Management Tools
IPSec, Apache2, IIS 6.0/IIS 7.0, Apache Tomcat, HTTP, SOAP, WSDL, UDDI Services, TCP, UDP, IP, FTP, TFTP, RS232, SNMP, Bootp/DHCP, Telnet, RADIUS, EAP, Apache Axis, Oauth and OpenId Connect, Angular, React, Flutter, Oracle, TOAD, SQLite, T SQL, SQL Server, Access, Visio, MS Project, MS Office

INTERNET PAGES

Public Pages https://www.mavroudes.com
https://www.viewsoftinc.net
https://my-social-net.com

References available upon request
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