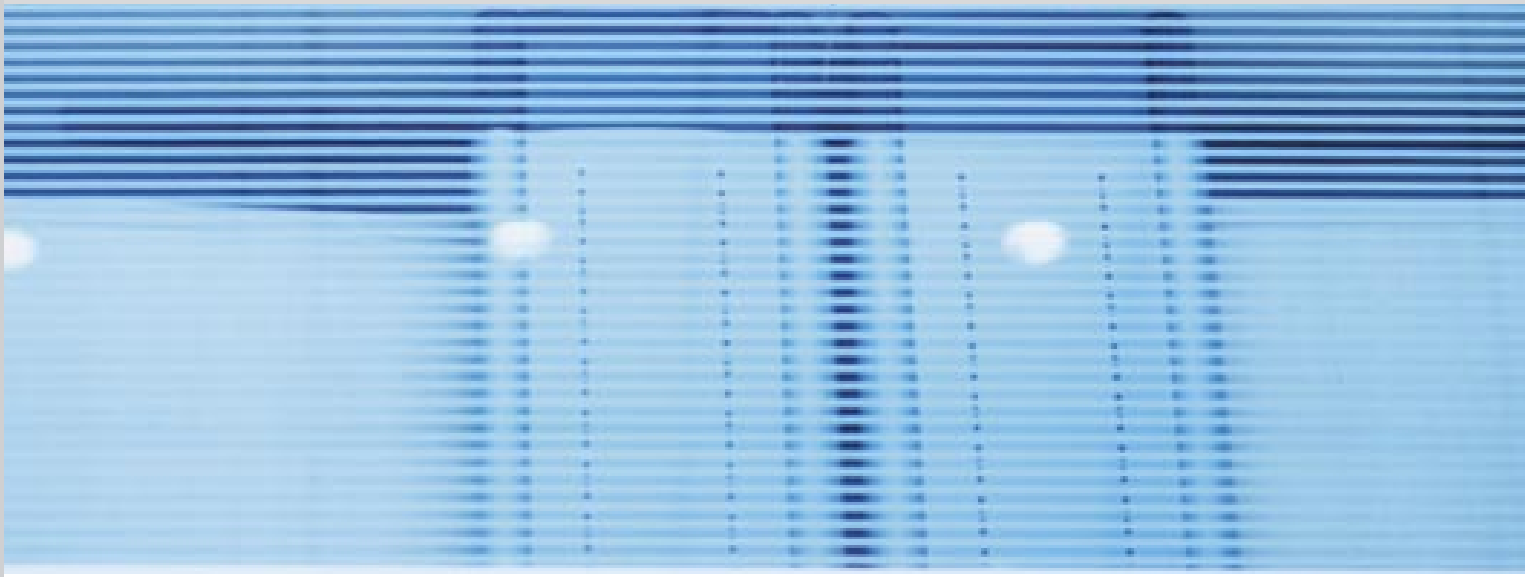
CommuniGate Pro

CommuniGate Pro
From the IT Department's Perspective



Introduction

CommuniGate Systems' flagship product, CommuniGate Pro, has proven to be the most technically advanced, feature rich messaging server. CommuniGate Pro supports standards SMTP, POP, and IMAP, and includes groupware, Webmail, personal Web pages, mailing lists, LDAP directory services, a SIP server, and spam/virus protection.

The SIP based features within CommuniGate Pro offer users real-time communications tools such as VoIP, video, secure instant messaging, and desktop/whiteboard/application sharing.

The groupware functionality of CommuniGate Pro provides a framework for teams of people to work together, enabling Outlook to run in "workgroup mode," with calendaring, group scheduling, contacts and shared folders, and also providing an integrated full-featured Web-based groupware client.

This overview is designed to address issues and concerns faced by a modern IT group as they evaluate various messaging systems. The process of evaluation usually has multiple components, from general questions about the architecture of the software to looking ahead at how the system will be able to support growth. We have divided this document into relevant sections including; basic product/company details, preparation and software install, adding/migrating users, end-user benefits, ongoing maintenance, integrating with other applications, and support for future growth.

The Basics

Proven

CommuniGate Pro is a proven solution with several thousand servers installed and running at customer sites worldwide. CommuniGate Pro serves more than 58 million active users, with implementations ranging in size from several hundred to 5-million plus user account systems.

Because of its reliable performance, standards-based architecture, and advanced feature set, CommuniGate Pro is utilized as the platform for a wide variety of services includ-

ing corporate messaging, Web-based e-mail for ISPs, unified messaging for telcos, and SMS systems for wireless service providers.

Standards Based

The CommuniGate Pro Server is based on the Internet Standards (RFCs) for messaging. By choosing an open-standards-based solution, you avoid getting locked into a proprietary hardware/software system and can create an extensible messaging platform that will grow with your business.

Supported standards include: SMTP/ESMTP (Simple Mail Transfer Protocol), IMAP (Internet Message Access Protocol), POP and RPOP (Post Office Protocol), HTTP (HyperText Transfer Protocol), LDAP (Lightweight Directory Access Protocol), ACAP (Application Configuration Access Protocol), DNR (Domain Name Resolver), SNMP (Simple Network Management Protocol), SSL/TLS (Secure Sockets Layer/Transport Layer Security), and SIP (Session Initiation Protocol).

Performance

CommuniGate Pro has gained a reputation for fast and stable performance by meeting the rigorous uptime, security and growth demands of its enterprise, educational, service provider and telco customers.

Written completely in C++, the parallel multi-threaded architecture distributes processing between several threads and all CPUs available on each server, resulting in better performance.

Uptime Requirements

With e-mail firmly entrenched as the main business communication media, any potential messaging solution should be able to provide carrier-grade availability, meeting the "5 nines" (99.999%) uptime requirement.

Generally that requirement cannot be met with a single-server solution. E-mail systems are much more complicated than traditional Web server systems, with the high data modification rate, complicated data processing, and variety of access methods (POP3, IMAP4, Webmail, etc.) that must be supported.

CommuniGate Pro can run in a wide variety of configurations depending on your uptime requirements, ranging from single-server, to fail-over, to full-scale cluster systems.

The unique CommuniGate Pro Dynamic Cluster technology relies on multi-tier load balancing and redundancy to provide the performance and reliability required by modern messaging providers.

The no-single-point-of-failure Dynamic Cluster software allows service providers to exceed 99.999% uptime requirements. For more information on clustering, see Growth section.

Security

CommuniGate Pro supports secure communications (SSL/TLS) for all its services - SMTP, POP, IMAP, HTTP, LDAP, ACAP, POPPWD, and it is 100% compatible with all SSL-enabled browsers and mail clients including Microsoft Outlook, Outlook Express, and Netscape Messenger. Secure connections can be established either using standard "secure ports" or using modern "secure on-the-fly" methods (STARTTLS for SMTP, IMAP and ACAP, STLS for POP).

CommuniGate Pro also supports the secure authentication feature (APOP/SASL) for all its messaging services - SMTP (SMTP AUTH), IMAP, POP, LDAP, ACAP, POPPWD. This feature allows client mailers to authenticate users without sending user passwords in clear text.

The server/domain administrator can specify (on the per-domain or per-account basis) that "Secure Login" is required. If this option is selected, the users can connect to their accounts only by telling their mailers to use "secure authentication" (any method like SASL CRAMMD5 or APOP that does not send password in clear text over a regular network connection). Alternatively, those users can connect to the server using a secure (SSL/TLS) connection and use any (SASL or clear-text) password exchange method over a secure connection.

Organizations with existing authentication systems can easily integrate CommuniGate Pro with those systems. For more information on external authentication, see Extensibility section.

Built in Spam Control

CommuniGate Pro contains built-in tools to protect your users from unwanted spam including prohibiting unauthorized relaying, SMTP AUTH, return-path address verification, maintaining "black lists" of offending hosts, utilizing realtime blackhole list services, spam traps, banning email by header and body lines, and filtering email.

Anti-Spam and Anti-Virus Plugins

CommuniGate Pro supports the use of third-party products to scan all incoming or outgoing messages for virus detection, spam prevention and content filtering. CommuniGate Systems partners with leading anti-virus and anti-spam

vendors to manufacture various filtering plugins designed especially for CommuniGate Pro.

Unlike "scanning tools" created by other mail-server vendors, CommuniGate Pro Plugins are developed together by CommuniGate Systems and the scanning engine companies to ensure scalability and minimal impact on system performance.

The current offerings are:

McAfee Virus Scanner Plugin

Kaspersky Labs Virus Scanner Plugin

SpamCatcher Engine developed by Mailshell

Focus and Stability of the System Vendor

CommuniGate Systems is the market-leading developer of integrated messaging for over 30 major computer platforms including Linux, UNIX, AS/400, Windows, and MacOS X. We are a mature and stable company, profitably in operation since 1991, and completely focused on messaging technology.

That focus allows us to listen to and deliver on the requirements of our customers.

CommuniGate Systems' commitment to providing the best software to its customers was rewarded at NetWorld+Interop 2001 Las Vegas, where CommuniGate Pro swept Network Computing's 7th Annual Well-Connected Awards. Not only did it win the award for the Best Large-Scale Mail System, but more importantly was chosen the Software Product of the Year. As reported by Network Computing, "Standards-based e-mail isn't trendy -- it's a staple. CommuniGate Pro impressed our editors with its low cost, low overhead, high availability, outstanding manageability, excellent security and platform support, and all the bells and whistles we expect in a mature, standards-based e-mail server."

Preparation and Install

Multiple Operating System and Hardware Support

Because CommuniGate Pro supports so many operating systems, you will not be forced to purchase new hardware or retrain your support staff. The product is compiled from a single code base on multiple platforms, offering options no matter what your server preference.

We currently support Solaris, Linux, Windows NT/2000/XP/2003, Windows, 95/98/ME, FreeBSD, Tru64, MacOS X, AIX, IRIX, HP/UX, BSDi, UnixWare, AS/400, BeOS, and OS/2 operating systems running on Intel IA32, PowerPC, MIPS, Alpha, Sparc, HPPA, StrongARM, Itanium IA64, Motorola 68K, AMD x86-64, and S/390 mainframes, allowing you to utilize existing hardware/operating system infrastructure.

The server takes full advantage of modern multi-threaded and multi-processor environments allowing for efficient and reliable message processing while still being easy on system resources. With 30+ hardware platforms supported, CommuniGate Pro allows the customer to choose the best price/performance ratio available in the current hardware/OS market. If the situation in the market changes, CommuniGate Pro allows the customer to switch hardware platforms on the fly, and to mix hardware/OS platforms in the same installation.

Flexible Storage Subsystem

The storage subsystem is the key component of the messaging system. Performance and reliability depend on this subsystem. CommuniGate Pro server does not use file-locking mechanisms and as a result, can work with NAS 3-5 times faster than other solutions. The software also provides real reliability over NFS, as NFS file locking has been known to cause problems in large, dynamic messaging systems. The CommuniGate Pro Cluster environment can also utilize modern cluster file systems such as Sun Cluster 3.0 and Compaq's Tru64.

Flexible Mailbox Formats

The CommuniGate Pro server supports various types of mailbox formats. The default mailbox format is easily set in the account settings, but users themselves can create mailboxes inside their accounts in any format - as long as they specify the desired format explicitly.

CommuniGate Pro installations usually have the "mbox" mailbox format (where all messages are stored in one file) selected as the default. CommuniGate Pro implements this format much more efficiently than most other servers that support it. For example 500 4K messages stored in a user's mailboxes will use 2MB of disk storage.

On the other hand, CommuniGate Pro allows the system administrator and users themselves to create mailboxes in the "mdir" format. This format uses a separate file for each stored message. Many competing solutions support only this "mdir" format or its variations. This format can provide better performance for certain operations (mailbox opening, message deleting), but only if the average size of a mailbox message is >100K.

If the "mdir" format were your only choice, then you would have to increase your raw storage requirements by the fac-

tor of 5 (at least).

For example, Network Appliance engineers estimated that storage requirements for Software.com InterMail are 30 times higher than the CommuniGate Pro requirements - the larger the disk block size used in the storage file system, the larger the difference in raw space requirements.

If some users need to store messages with large attachments (graphics, audio files) those users can create "mdir"-type mailboxes in their accounts (in additional to the default INBOX mailbox). Then they can use the automated processing rules to direct certain messages to those mailboxes based on the message size, content-type or any other criteria. Alternatively, users that deal mostly with large messages can have their

INBOXes created in the "mdir" format.

Install/Setup

The installation procedures are specific to the operating system you choose, but the CommuniGate Pro installer manages the process. For example on Windows NT, it is installed as a mail service, while on UNIX and Linux systems it must be configured as the default message handler. After you install the main system files, you perform more advanced configuration via the Web-based administration interface.

With the same interfaces and the same file formats on all platforms, CommuniGate Pro can be moved to a new server with a different operating system quickly and easily.

Adding/Migrating Users

User Accounts

When provisioning accounts you have the option to add them from a database, a system file, a directory, programmatically, or through the Web-based administration interface. To support migrating from another e-mail system, CommuniGate Pro provides simple tools to import existing users and mailboxes. For organizations moving thousands of users, these tools can reduce the complexity and time needed to complete a migration.

CommuniGate Pro provides POP, IMAP, and Webmail access to all its accounts by default. There is no need to specify the access type for each account (including simultaneous multiaccess). On the other hand, per-domain and per-account Access Mode settings allow the server and domain administrators to disable POP, IMAP, Webmail, personal Web site, ACAP, and PWD access.

Each CommuniGate Pro account has more than 40 settings, each controlling different features (quotas, rules, traffic, personal Web site limits, RPOP accounts, aliases, mailing lists, secure mail S/MIME, SSL/TLS, secure authentication, access methods, etc.), all of which can be controlled by a billing system. This granularity allows service providers to generate additional revenue by creating different classes of service with different feature sets, all integrated with the billing system.

End User Benefits

Enabling Outlook

Users who prefer Outlook on the desktop can take advantage of its advanced collaboration features. Working in "corporate workgroup" mode they receive e-mail, arrange meetings, share contacts, access free/busy information and reply to requests in the familiar Outlook interface. Users who previously ran Outlook in limited Internet mode can now utilize its advanced calendaring and scheduling functionality.

Enabling CommuniGate Pro to support Outlook in "corporate workgroup" mode, is the innovative MAPI Connector. The MAPI connector sits with Outlook on the Windows desktop, and translates Microsoft proprietary MAPI language into standards-based MIME. The resulting data is then sent to the CommuniGate Pro server over the IMAP protocol.

While emulating Exchange/Outlook functionality has been difficult for others, CommuniGate Systems is committed to developing innovative technology that meets industry demands for functionality, reliability and security. CommuniGate Pro with Groupware supports the most commonly used calendaring, scheduling, and emailing features of Outlook.

Supported Outlook Functionality:

- Compose, send and receive e-mail
- Schedule meetings, events and appointments
- Invite attendees, receive and respond to invitations - calendar automatically updates with response
- Reschedule or make changes to appointments - updates automatically sent to invitees
- Set recurrences for appointments
- Share account free/busy and mailbox information
- Set up mailbox filters with integrated wizard
- Search folders with integrated find utilities
- Share folders, contacts and tasks
- Work in off-line mode – re-synch when you re-connect

Unlike some of the other Outlook plugins available today, CommuniGate Pro DOES NOT add any extra toolbars to the Outlook interface or require the user to synch periodically with the server. With CommuniGate Pro, users have a real time connection directly to the server and work in the normal Outlook interface to which they are accustomed.

Choice of Other Clients

CommuniGate Pro also supports access to email by any standards compliant desktop client, web browser, and many legacy applications, allowing users to keep their favorite e-mail client whether it is Outlook, Netscape, Eudora, or even Pine.

The server stores all data in internet standard formats, ensuring interoperability with other systems using standard iCalendar/vCalendar or vCard data formats for information exchange; for example the CommuniGate Pro server can interact with Exchange and Lotus Notes servers, the Netscape/Mozilla calendaring client, Apple's iCAL calendar clients, PALM calendaring applications, etc.

Emerging calendaring client applications can also use HTTP/WebDAV protocol supported within CommuniGate Pro to directly access and modify the same groupware data as the Outlook and Webmail clients.

Full Featured Webmail

The integrated Webmail interface is also a secure groupware client, supporting messaging, scheduling, electronic discussions, and contact creation and maintenance. Users can access the same mailboxes, folders and calendars from any browser, just as they would with Outlook.

Also within the Webmail interface, users can set permissions that define how others may access their account.

For instance the marketing team might have a 'marketing contacts' folder where each team member adds, deletes, and updates information, while a manager might allow her assistant read-only access to her personal calendar.

SIP Server

The included SIP Server allows users to communicate in real-time via VoIP, video, instant messaging, and desktop/application/whiteboard sharing using a variety of SIP compatible 3rd party devices and utilities. SIP's responsibility is to initiate the communication between users (hence the acronym Session Initiation Protocol) in conjunction with SDP (Session Description Protocol), which helps determine how data will be transferred between devices based on their common characteristics.

The CommuniGate Pro SIP Server can take on several server roles as a means of initiating user exchanges:

SIP Registrar Server - contains the location information (e.g. IP addresses) of SIP users for its domain.

SIP Proxy Server - accepts session requests from SIP users and receives necessary location information from the SIP Registrar Server for users being requested. With that information it forwards requests either to requested users or another SIP Proxy Server.

SIP Redirect Server - notifies the SIP Proxy Server or users, themselves, if the requested user is outside the local domain and provides information to reach that user.

SIP Presence Server – contains information regarding the status of a user (e.g. busy, available, away), which can be relayed to other users.

Once it has been determined via SIP that there can be communication between users, the actual data for IM, VoIP, video, and desktop/application/whiteboard sharing is sent directly between users using the agreed upon protocol established by SDP.

Self Service Administration

To more efficiently manage their daily deluge of e-mail, each user can define their own message filtering and forwarding rules in a way that makes sense to them, taking that burden off the system administrator. Users also have control over their vacation messages, and can reset passwords or have the password sent to them if they forget.

List Server Functionality

CommuniGate Pro implements built-in mailing list functionality. Mailing lists are automated e-mail lists, maintained by subject matter, which can be used for distributing information or having discussions. New users generally subscribe by sending e-mail with the word "subscribe" in it and subsequently receive all new postings made to the list automatically. Each mailing list can have a Web-based archive for users to view and search through messages.

Reliable Service

Under heavy load, CommuniGate Pro knows to service client requests first; if necessary it scales back SMTP delivery freeing up cycles to serve client requests, virtually eliminating those client side "timed out" errors that result in annoyed end users and calls to your support desk.

In benchmark tests done by Network Computing, CommuniGate Pro was tested along with other commercial products from Rockliffe, Critical Path, iPlanet, Mirapoint and Novell. CommuniGate Pro was the only product that didn't generate a single error on the client side during testing. All the other products timed out requests from clients when they were under high load.

For full article, go to http://www.networkcomputing.com/1117/1117f1.html

Ongoing Maintenance

Day to Day Administration

CommuniGate Pro has an abundance of features which are easily administered, allowing your staff to focus on other tasks. System administrators can choose to work in the intuitive Web-based administration interface or use the Command Line Interface (CLI).

Within the Web-based interface, settings are divided into four realms: server and module settings, account and domain administration, directory administration, and service monitoring. By default, the postmaster has access to all four groups and can delegate access rights. Three of the realms -- settings, accounts, and directory – are used to configure the system, grant permissions and add user accounts. The monitoring section is used on a daily basis to monitor overall server performance and provides access to the server logs.

Additionally, the Web-based administration interface supports "domain delegation", where each domain may have its own set of administrators. This functionality liberates your support staff from client calls requesting a change in domain settings or the creation of a new account within their domain.

Server Wide Rules

The CommuniGate Pro server can automatically process messages using several sets of automated rules that you easily define in the Web interface. Those server-wide rules are applied to all messages submitted to the server.

System Logs

To manage performance, CommuniGate Pro offers a variety of methods for gathering information. Each component of CommuniGate Pro, SMTP for example, has the ability to record transactions in the CommuniGate Pro system logs. CommuniGate Pro logs have proven to be a very effective method of troubleshooting, providing extensive details on any component activity – all in one place, in real-time.

Administrators monitor all components of the server by checking messages in the system logs. Each record contains a time stamp, the log level, the tag identifying the component that created the record, and the record data itself. System logs are plain text files, and can be processed with any text-processing utility.

The level of information that is recorded is controlled by the mail server administrator and can be changed at any time. While this feature is commonly used in the trouble shooting process, this information can be submitted against a third party application designed to analyze the CommuniGate Pro log and generate desired reports. This can include overall system usage, traffic to a particular domain or account, the number of connection from an account and number of messages sent by a user.

Fault Management

CommuniGate Pro implements SNMP monitoring. Performance information can be viewed via the web administration interface or used in conjunction with a third party application.

SNMP monitor applications (like HP OpenView) can send requests to CommuniGate Pro via SNMP asking for statistical data; for example, the number of currently connected IMAP users or the number of messages in queue.

The CommuniGate Pro "MIB" file, that specifies all types of data a program can get from the product, currently contains several dozen parameters in it, with 5-10 new parameters added with each new release.

CommuniGate Pro also features SNMP traps. The server ("SNMP Agent") is configured to send traps on certain events. For example, CommuniGate Pro will send traps when there are more than X messages in the queue, or when the number of connections from the same user exceeds Y.

This SNMP trap functionality is called "events." The administrator can specify not only when an event should be "trapped" (i.e. what makes an event - more than N messages in queue) - but he/she can also specify what to do on that event: send an SNMP trap to SNMP monitor program, send an email, or send a CommuniGate Pro alert to the user.

Backup

The CommuniGate Pro message store allows for "live" backups using any regular backup-restore program. The server does not have to be stopped to do a backup.

CommuniGate Pro will work with any back-up software appropriate to your operating system. CommuniGate Pro requires that no file locking mechanisms are used during the backup process.

Restore

CommuniGate Pro files can be restored using the regular procedures employed by any backup-restore program.

Technical Support

CommuniGate Systems provides unlimited email technical support, 1 year of free software upgrades, and optional remote assistance at no charge. Customers can also use the CommuniGate Pro mailing list for free tech support, requests for features enhancements, and technical advice from other administrators using the product. The software upgrades are always full rebuilds, not patches, to ensure continued maximum performance.

Integrating with Other Systems

Extensibility

The CommuniGate Pro server supports the use of an external application (program) for user authentication. That application (script, database, RADIUS authentication, etc.) is generally created by the customer's technical staff and implements authentication mechanisms required at your site but not supported directly by the CommuniGate Pro server.

All administration functions available via the CommuniGate Pro Web administration interface are also available via its special CLI/API port. The Perl and Java modules (CLI "wrappers") are available for download from the CommuniGate Systems site and can be used to simplify CommuniGate Pro integration with existing billing and administration systems.

Growth

Scalability

Optimized for every platform, CommuniGate Pro is designed to provide access to hundreds of thousand accounts, and to relay mail on the most heavily loaded sites. For extra large

sites handling millions of accounts, both Static and Dynamic cluster support is available.

True Clustering

To meet requirements for a fault-tolerant, heavy-duty mail server, you can deploy the CommuniGate Pro Dynamic Cluster solution. The no-single-point-of-failure Dynamic Cluster software allows the site to exceed 99.999% uptime requirements.

The unique CommuniGate Pro Dynamic Cluster technology is a software solution, running on a group of servers, that relies on multi-tier load balancing and redundancy to provide the reliable performance. All servers in a CommuniGate Pro Dynamic Cluster work together, processing mail and serving user requests. The Dynamic Cluster controls the load on each server and directs new requests to the least busy server.

In the event of hardware failure, the Dynamic Cluster controller detects it and removes the server from the cluster.

The e-mail system continues to work without interruption. There is no "intermediate" time, like in simple fail-over solutions when the hot stand-by server replaces the failed one. When the failed server is restored or when a replacement server is installed, it joins the cluster automatically, again without any service interruption.

The integrated Web-based, CLI, and SNMP administration interfaces present the entire cluster as a single system (Single System Image) for easy administration and maintenance.

Conclusion

CommuniGate Systems wants you to try CommuniGate Pro and evaluate for yourself how well it meets your organization's needs. We offer fully functioning, fully supported versions that you can download and install from our Website at www.communigate.com.

We're sure that you will find the rich set of advanced messaging features, scalability, reliability, and unmatched performance make the CommuniGate Pro software the best choice for your organization.

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