Flat, Consolidated, and Global: A New Multi-site Call Center Model

White Paper

Dave Bengtson

Global Strategic Solutions Team

Avaya Inc.

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This White Paper explores the business benefits, operational models, and enabling technologies for the multi-site call center. Although the dominant 1990's multi-site call center technology model served enterprises well, the assumptions behind that model are now obsolete. New realities drive a new multi-site paradigm that is flat, consolidated, and global in nature.

This new architecture enables new models for running call centers that dramatically reduces costs and improves responsiveness to marketplace changes.

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Section 1: Introduction

Deriving business value from operating a call center is very challenging. Numerous studies by industry analysts have identified the two most significant cost drivers as people (salaries, benefits) and telecommunications (trunking, 800 charges). These two expenses make up between 80-90% of the total cost structure of running a call center, and these costs get magnified when running a multi-site center. Not surprisingly, organizations have been keen to implement multi-site optimization technologies to help minimize those two line items by invoking centralized management and accessing lower cost labor pools.

The purpose of this white paper is to examine the three tiered multi-site call center technology model of the 1990s, identify the drivers, environment, and assumptions for the three tiered model, and suggest a new alternative that is consistent with today's operating and technological realities. The themes for the new model are Flat, Consolidated, and Global.

This new alternative offers a low cost and vastly simplified infrastructure, improved operating performance, and enhanced organizational agility and flexibility. In many instances, the new model can be implemented with a payback of less than twelve months[1].

Section 2: Multi-site Call Center Background

One of the key issues for call center operational managers and call center technologists has been resource optimization. These managers have correctly pursued a model where all agents in an enterprise are utilized as a single pool of resources; this pooling of resources offers both efficiency and effectiveness gains.

From an efficiency perspective, the pooling of agents manifests itself in improved:

- Accessibility - as measured by Service Level
- Queue times - as measured by Average Speed of Answer
- Agent utilization - as measured by Agent Occupancy
- Delays – as measured by Maximum Delay
- Trunk Utilization – as measured by Traffic Load

[1] Results are highly dependant on individual operating environments. Different implementation methodologies, assumptions, processes, and objectives may contribute to lower or higher results.

These gains are primarily realized by the straightforward application of Erlang C traffic theory.

Pooling can also help improve an organization's effectiveness. Effectiveness manifests itself in improved:

- Abandons – as measured by Abandon Rate
- Enterprise Match Rate – connecting a caller with unique needs and business value to the agent uniquely qualified to meet their needs. The improved match rate is highly correlated with fewer transfers, improved cross and up-selling, higher throughput, and higher one call resolution.
- Business intent – as measured by metrics such as sales close rate, revenue/transaction, cost/call, number of trouble tickets closed, customer retention, etc.

This pooling concept among multiple call centers is sometimes referred to as virtualization. Although the naming may vary, the desired end game remains the same: be efficient and effective with agent and telecommunications assets.

Given the benefits of pooling, the question then becomes: What are the call center technology enablers for resource pooling or virtualization?

Section 3: The 1990's Multi-site Answer: The Three Tier Model

During the 1990's, many organizations implemented a three-tiered routing model to implement the pooling principle. Three distinct technology layers were required:

- Layer 1: Interexchange Carrier with advanced 800 number routing features
- Layer 2: Computer Telephony Integration (CTI) based Network Router
- Layer 3: Standalone Automatic Call Distributors (ACD)

Many organizations followed this model as part of their "Best of Breed" technology sourcing strategy. With this approach, the enterprise chose the best product or service for each layer from a different vendor. The internal IT staff or a System Integrator then attempted to integrate the disparate components into a single multi-site system.

A. Technology Operating Description of the Three Tier Model

After a caller dials an 800 number, the 800 carrier network temporarily puts the caller on hold. The carrier network queries the CTI based Network Routing application (usually premise based) via a special

Signaling System 7 (SS7) based circuit. A component within this routing application, the Master Router, instructs the 800 carrier to send the caller to a specific application group on a specific ACD over a specific trunk group.

The Master Router application receives state change updates from each of the standalone ACDs' CTI link, a Network Router Interface, and in some applications, a real time reporting interface from the ACD call center reporting system. These components forward real time event data on applications, routing routines, queuing conditions, skills, and agent work states to the Master Router. Via these updates of call center conditions, the Master Router theoretically has visibility into agent groups across the enterprise. With this visibility, the Master Router can route to the right agent group on the right ACD on a call-by-call basis.

Once the call arrives at a site on a specified trunk group, the ACD routing logic takes over. The caller is sent to a specific agent group or groups. If no agent is available, the ACD queuing logic plays announcements, music in queue, or offers a self-service application.

If the caller is not answered in a user specified amount of time, and if the wait time is improved at another location, the Master Router instructs the ACD to send the call to a different location. Usually the ACD invokes a network carrier based "take back and transfer" to the alternate call center site, and the call selection and agent selection process restarts.

At each location, there is significant call center application infrastructure. Besides an ACD with its own voicemail system, a separate PBX is required to support the administrative (i.e., non-call center) workers; this PBX typically has its own voice mail system. Both the PBX and the ACD may require redundant dedicated 800/long distance, local service, and direct inward dial (DID) trunking. Additionally, each ACD has a dedicated Network Router Interface (possibly two if deployed in a high availability configuration) to forward events to the Master Router. Usually, there are also several adjunct applications located at each site as well: Computer Telephony Integration (CTI) systems or servers, Quality Monitoring, Interactive Voice Response (IVR), Workforce Management (WFM), Reporting, and Multimedia applications such as email, chat and web collaboration.

The application architecture for a four-call center site deployment is depicted in Diagram 1:

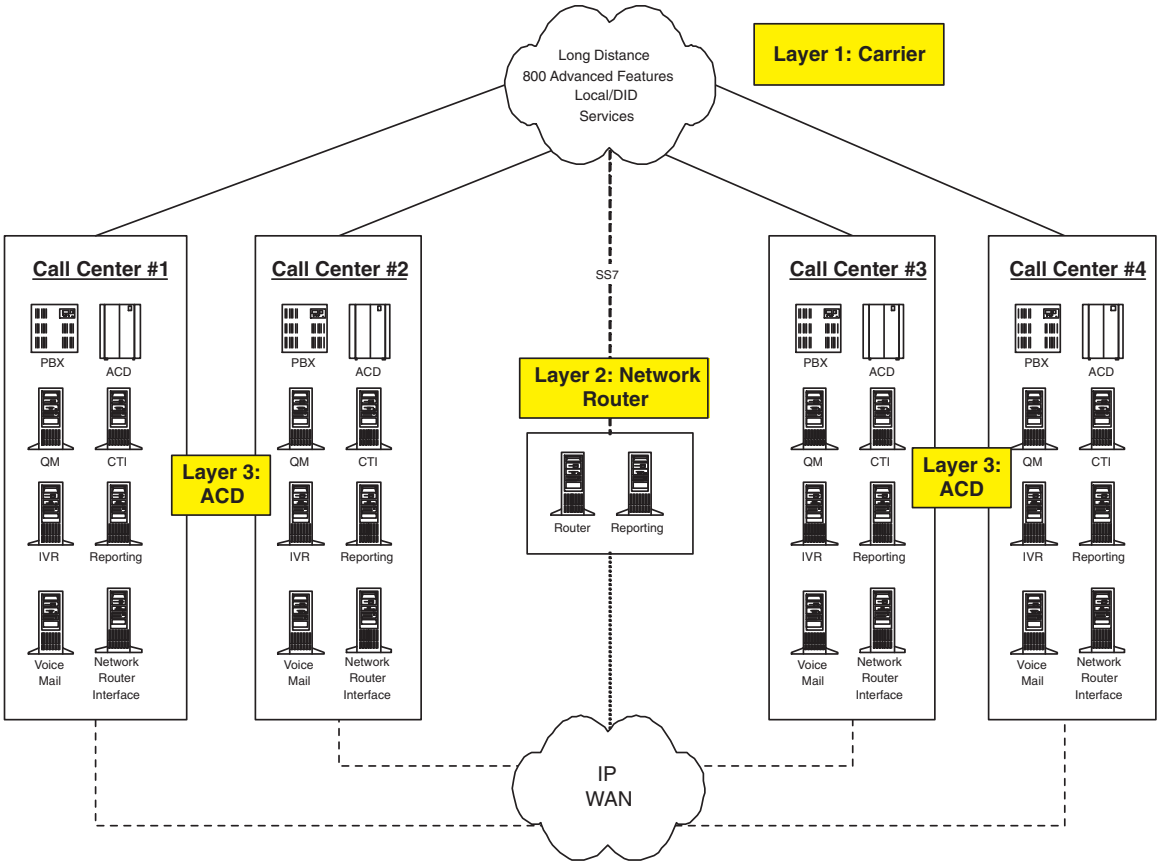

Diagram 1: Three-Tier Routing model in a four call center deployment

A variation of this model is used in industries that typically provide very high self-service rates (such as Financial Services). With this option, the 800 carriers initially send 100% of the calls to a direct network connect centralized Interactive Voice Response (IVR) farm. The Master Router monitors the IVR ports via a Network Router Interface while concurrently monitoring the ACDs for agent and skill availability. If a caller is unable to self-serve and requests agent assistance ("zero out" option), the Master Router instructs the IVR to invoke a carrier based transfer. The IVR sends a series of touch-tones to the 800 carrier, and the carrier then reroutes the caller to the designated call center.

The centralized IVR farm application concept is depicted in Diagram 2:

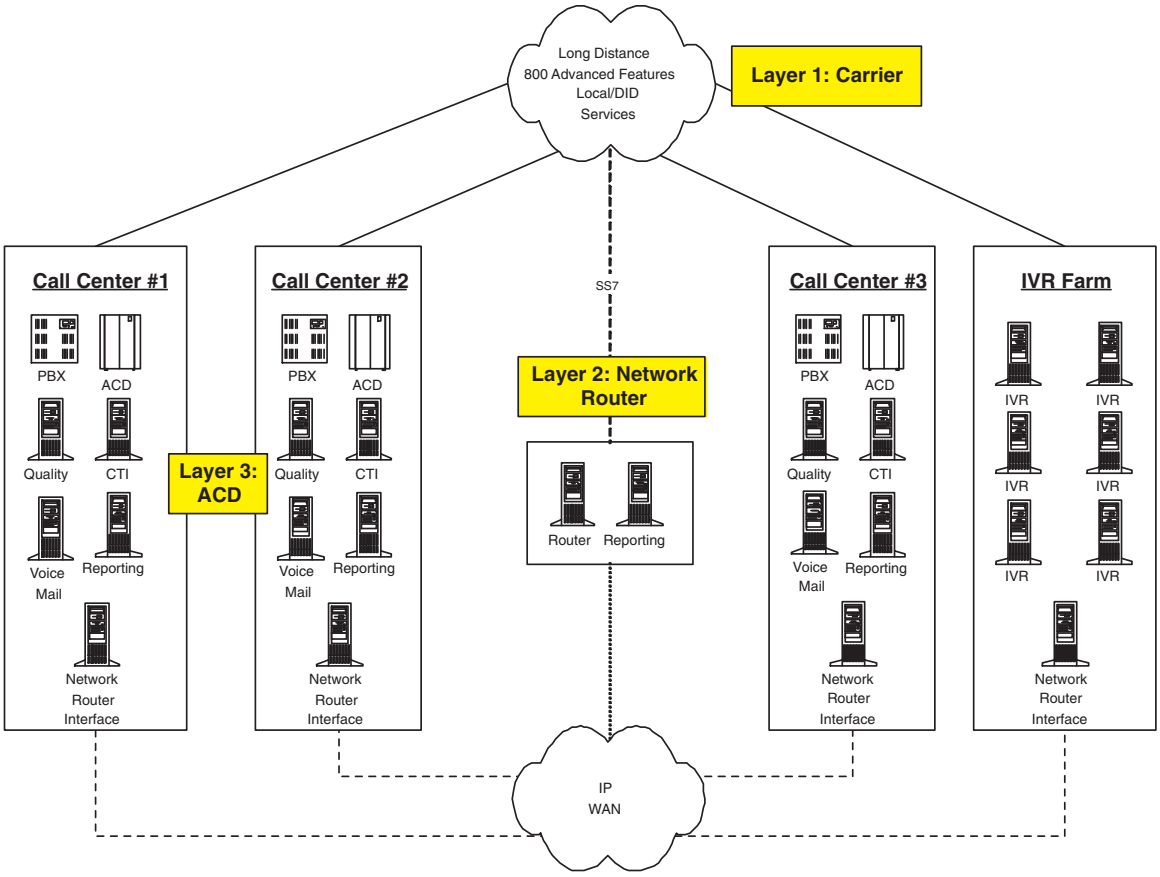

Diagram 2: Three tiered model in a three call center and IVR Farm deployment

In summary, there are three layers of logic operating in this multi-site model: The network (receiving destination and transfer instructions), the CTI based Network Router (sending the network routing destinations), and finally, the ACD (for the agent group routing, queue treatment, agent selection logic, and call selection logic).

B. 1990's Rationale for the Three-Tiered Model

This three-tier model was clearly the superior option for many organizations in the 1990's for several compelling reasons:

- Expensive base 800 charges

  In the early 1990s, FORTUNE 500® companies with large volume commitments and long-term contracts typically incurred base 800 service charges of 12-15 cents per minute. Due to this high per

minute expense, it was critical for companies to send calls to the correct Call Center initially and avoid subsequent call transfers. If a call did need to be interflowed between centers using the ACD's routing logic, the 800 meter charges would double for the call: one charge for the initial call, and a second for the outflow call.

- Relatively inexpensive advanced feature costs

  A few cents for a carrier based dip charge or network transfer is a rounding error when compared to the 12-15 cents per minute base 800 charges.

- Prevalence of multi-vendor ACD environments

  Many companies grew via the accelerated mergers and acquisitions during the 1990s. As a result, many firms ended up with a heterogeneous mix of ACD platforms. The only practical way to pool the agent resources across the multi-vendor ACDs was to normalize the operations via the CTI based Master Router. The only other option required total replacement of the existing ACDs and implementing a single enterprise platform. The combination of companies not being able to afford accelerated asset write-offs, coupled with the vastly disparate call center technology obtained in those mergers and acquisitions (particularly in the financial services industry) lead to the popularity of the three tiered model.

- Inflexible, expensive and hard to manage private T1 networks

  Even if a company had ACDs from the same manufacturer, a private network of ACDs interconnected by point-to-point T1s became very impractical after three or more sites were interconnected. With each additional site, the interconnectivity problem grows exponentially.

- Dedicated ACDs provide superior call center platforms

  Standalone ACDs had exceptional routing and reporting capabilities when compared to PBXs. ACD vendors had highly trained, call center literate personnel working in Sales, Marketing, and Service, helping them to differentiate their offerings with regard to PBX manufacturers.

- Dedicated ACD technology has limited scale

  Some dedicated ACDs ran out of processing power when 500 agents were simultaneously logged in and processing calls. CTI based Network Router applications were needed to manage multi-site routing because the ACD Central Processing Units (CPUs) ran out of processing cycles to effectively use their native multi-site routing logic.

- Call centers operated locally/domestically

  Call centers primarily sourced their agent talent from their home country.

Section 4: A Changing Environment

A. Environmental and Technological Drivers in the New Millennium

The three-tier model was right for the 1990s. However, at the close of 2003, the technological drivers, operating assumptions, and environmental factors that inspired the 1990s three-tier model are not nearly as valid. Paradoxically, what was once seen as a technological enabler is now seen as an inhibitor to world-class call center performance.

The drivers and factors today are markedly different from the 1990s:

- Base 800 charges are now less than 2 cents/minute

  Because of continued reform in the United States' telecommunications markets, 800 carriers will start negotiations for 800 services at less than two cents per minute, even for medium and small size businesses. "Paying for the second call" is literally only 10% of the problem it was in 1990.

- Advanced network features are relatively more expensive

  Today, advanced features like SS7 dip charges and carrier network based transfers can be as high as 25-30% of the total cost of a call. In the last decade, these charges typically were less than 5% of the total cost of a call. These features are now a large enough cost item to be managed as a separate expense, and large organizations can generate hundreds of thousands of dollars a month in advanced feature charges.

- Multiple sites can be pooled via a simple, flat network, low cost IP phones, and centralized call center applications.

  In the 1990's, a new agent seat in a pooled call center environment cost thousands of dollars. This per seat charge was comprised of software right to use fees, system integration charges, and redundant hardware and network infrastructure. Today, that same call center seat can be pooled for hundreds of dollars. The savings come from a common network infrastructure, centralized call center applications, low cost IP phones, and simple, distributed gateways. These applications and infrastructure can work with multiple equipment vendors and network carriers on a standards-based IP network. Complex, custom, hard to maintain, and least common denominator CTI integrations are no longer needed to virtualize call centers.

Voice traffic now rides the same enterprise network as other data applications, eliminating or minimizing the need for the CTI based Network Router application as well as the expense of advanced 800 features, dip charges, SS7 links, and network transfer charges. Through the late-1990s, dozens of network service providers installed thousands of miles of new fiber optic cabling and advanced electronics; these carriers are now luring new customers and incremental traffic onto their new infrastructures with extremely low cost offerings. Many providers have slashed their circuit prices by 90% over the past three years to try and fill their unused capacity.

- Integrated ACD/PBXs are the call center platform of choice

  Integrated ACD/PBX vendors have closed the feature/functionality gap with standalone ACD vendors. Some integrated ACD/PBX vendors have achieved a functional parity with the ACD providers, while a select few have platforms that offer truly superior functionality. An integrated ACD/PBX removes the redundant investment, administrative interfaces, maintenance, and infrastructure required in last decade's solution. All skill based routing, prompting, queue treatment, trunking, and agent states are controlled through a single application of organically grown software, with a single administrative interface.

- Integrated ACD/PBX technology has massive scale

  A single ACD/PBX can now connect thousands of callers to thousands of agents over thousands of trunks around the world. This call distribution can now be done over circuit switched, ATM, and IP based networks.

- Call centers staff globally

  Call centers now source their talent from around the world. Emerging markets like India, the Philippines, China, Africa, the Caribbean, Latin America and South America have an abundance of recent college graduates who are highly motivated, skilled, and for whom call center work is a solid middle class career. These countries typically offer 30% operating cost reductions over the US, Western Europe, and Japan, while offering a well educated, motivated, and high quality workforce. The best agent for a particular caller can literally be chosen, location independent, from around the world. The enabler for this operation is to simply extend an IP network and IP agent phones to those new global locations.

The changes in technical drivers and environmental factors that drive the multi-site architectures are summarized below:

Drivers and Factors	1990s	2003+
Base toll free charges	12-15 cents/minute	Less than 2 cents/minute
Advanced 800 charges	Relatively inexpensive	Relatively costly and trending upward
Multi-site Call Center network	Hierarchical TDM and SS7 network with Distributed Applications	Flat, packet, QoS enabled network with Centralized Applications
Main Call Center Serving Vehicle	Standalone ACD	Integrated ACD/PBX
Call Center Scalability	Low – 100s of agents	Massive – 1000s of agents
Call Center Staffing Model	Domestic	Global

Today's environmental realities and operating models drive the new call center architecture.

Section 5: Today's New Multi-site Architecture

The drivers of low cost commodity 800 services, relatively high cost advanced 800 feature charges, the emergence of ubiquitous, high bandwidth, IP based WANs, massive scalability, and global operating models propel the key themes of the new multi-site call center architecture: flat networks, server consolidation, and global operations.

1. Flat Network

Flattening the network occurs by compressing the three tier model layers of hierarchal routing logic - 800 carrier, CTI based Network Router, and standalone ACD - into a single layer of routing and work distribution logic contained within a single call center application. This application controls and has 100% visibility into all agent work states, skill groups, applications, 800 numbers, and trunk groups, as well as handling caller and queue treatment, selecting agents, and selecting calls from queue.

2. Server Consolidation

The single block of logic mentioned above not only controls the call center, but also the core administrative users. It consolidates the separate ACD and PBX into a single integrated entity. Not only is this architecture simple and elegant, but also extremely flexible. Any telephone, in any location, can now become a call center agent telephone, From a call center management perspective, this allows call center mangers to operationalize new elastic and dynamic staffing models, as well as call surge strategies because every end

point in the organization is capable of handling calls. From a technology management perspective, this eliminates the need to manage two different inventories of telephony equipment, including servers, cabinets, circuit cards, and telephone sets.

The nature of IP networks allows for deploying an application once, and letting numerous users access the same application. The integrated ACD/PBX, CTI, IVR, Voice mail, Quality Management, Reporting, and Multimedia are all consolidated into a single application instance in a centralized location. Whether working in a 1000 seat center co-located with the applications, or working from a home office on the other side of the world, the consolidated applications are available to any authenticated user over an IP based network.

In summary, the reduction in servers is the result of three changes:

1) The CTI based Network Router is no longer required.

2) A discrete PBX is no longer required for each location.

3) Servers for supporting applications (WFMS, CTI, IVR, etc) are no longer required at each site.

3. Global Operations

Barriers of distance, country, and organization are eliminated with this new architecture. This architecture lets any agent, operating anywhere in the world, become part of the enterprise pool. The location may be in Headquarters, Regional Offices, Home Offices, Branch Offices, Small Offices, Home Offices, or Telecommuters. Agents can be in developed or industrialized countries, near shore, far shore, developing or emerging markets. Agents can be internal to the organization, part of a joint venture, or completely out-sourced on the other side of the world.

This architecture is depicted in Diagram 3:

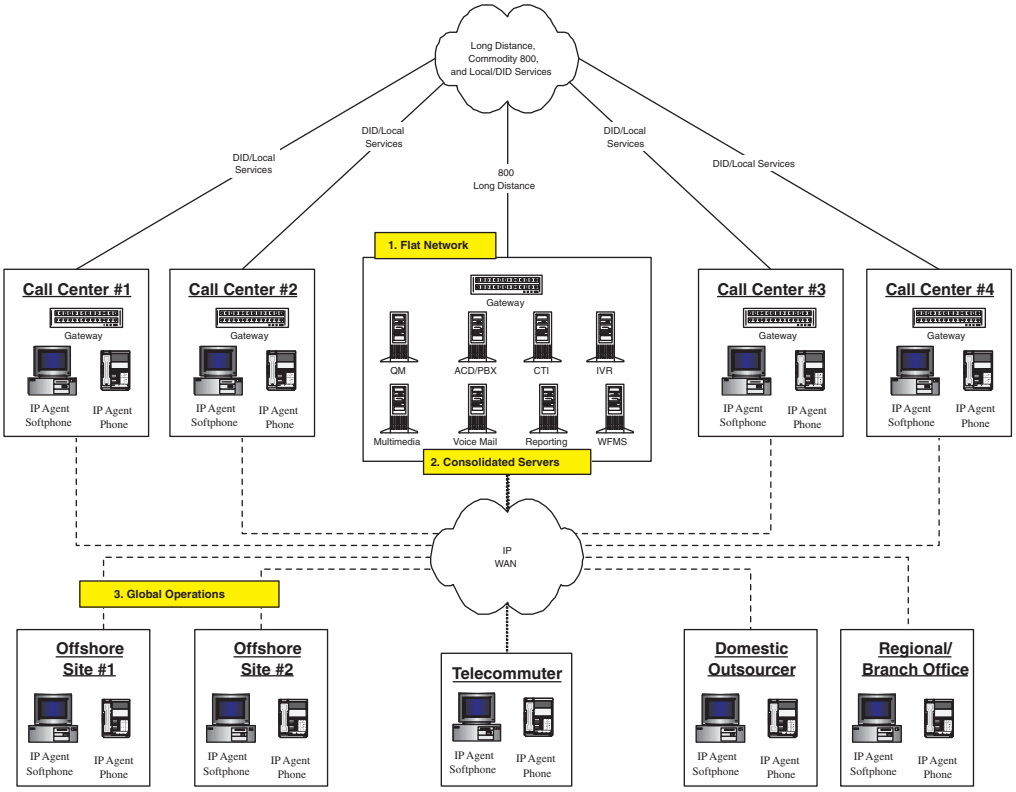

Diagram 3: New Multi-site Architecture

Section 6: The New Architecture and Technology Operations

The 800 carrier delivers calls to a simple series of centralized media gateways via very basic, low cost 800 services (no advanced features). The gateways are responsible for converting the originating TDM (circuit switched) based call into an IP (packet based) media stream. The gateways provide the additional supporting resources that a call center needs: prompting for call purpose and caller identification, music in queue, announcements and on hold treatment. This gateway also serves as a connecting point for ancillary applications that require a voice stream or emulated voice stream such as fax servers, voice mail systems, IVR systems, quality applications, and overhead paging systems. The media gateway serves as the queuing or holding point until an agent becomes available.

The gateways, application routing tables, skill groups, call treatments, queue treatments, agent work states, call selection, and agent selection logic are controlled via an integrated ACD/PBX software based application resident on highly reliable and scalable media servers. This software executes on standard server technology; it is also the application source for administrative user applications such as call coverage, conferencing, messaging, mobility, and paging.

All 800 traffic and long distance can be centralized into one location. By centralizing this traffic into one location, the maximum trunking efficiency is gained - a straightforward application of Erlang B traffic theory. For the remote sites, gateways can be used to support a local market presence (i.e. telephone numbers in local Yellow Pages) and well known local numbers with Direct Inward Dial (DID) and Central Office (CO) services, as well as 911 emergency services. These remote gateways also support TDM based telephones for added resilience (for example, data network impairments from viruses) as well as aiding in migrations (re-use of TDM telephones). The network design principle for the new architecture can be summarized as: "Centralize 800 and long distance facilities while distributing local presence facilities".

Once the integrated ACD/PBX server selects an agent, the gateways use a digital signal processor (DSP) resource to convert the circuit switched call to an IP based media stream. The media stream is directed to the agent IP endpoint, and options for this endpoint include IP phones, IP soft phones, or IP based mobile devices such as personal digital assistants (PDAs). These agents can literally be located any place in the world. As long as the agent can authenticate to the integrated ACD/PBX over an IP based network, the media stream containing the customer interaction will be directed to the correct endpoint.

It is worth noting that the integrated ACD/PBX is now literally an enterprise application. The application manages one single enterprise queue, with one set of business rules, one pool of agents, and one set of work states, all interconnected by a single, low cost, simple IP based Wide Are Network. Once at a site, the call is delivered over the switched LAN infrastructure to the agent endpoint.

Contrast the above philosophy with the 1990s model. The 1990s model makes a best guess at a call center site coming from the network, and if the guess is wrong, reshuffles the call and queue deck again by re-routing the call to an alternative call center, where the queuing, agent selection and call selection process restarts. The 1990s approach is horrendously inefficient and overcomplicated: multiple pieces of logic touch the call multiple times. With the new model, there is no reshuffling of the deck: the caller is simply delivered to a centralized gateway site, and the enterprise ACD software makes one of two enterprise decisions: If there is an enterprise queue, what is the correct call to select from queue when an agent

becomes available, or if multiple agents are available, who is the right agent to select. There is only one decision to make once, and there is no reshuffling of the deck of calls.

Besides the core ACD/PBX, all the supporting adjunct call center applications such as CTI, WFMS, IVR, Voice Mail, Quality Management, and Multimedia also get consolidated and centralized. Today's CIO's are quite familiar with the benefits of server consolidation – in 2003, many research firms identified server consolidation as a top 5 CIO initiative globally. The mantra of this design and management philosophy is "Build Once, Deploy Everywhere, Manage Centrally". Whether an agent is working in a 1,000 seat call center at a corporate headquarters, an outsourcer, or telecommuting from home on the other side of the world, every agent has access to the same applications and tools, and managers have 100% visibility into agent and location activity.

Contrast this new model with last decade's architecture. In comparison, the 1990's design is over-complicated and needlessly expensive to maintain and manage. Three tiers of logic and an application instance per location make no sense when the operating assumptions, technology drivers, and business issues have changed so dramatically. A data center is an ideal location to house the new application infrastructure because it is now another enterprise application. And because all applications are centralized, the application support staff can also be centralized at the data center as well.

High Capacity Options

For high capacity applications, two or more mirror images (or nodes) of the application infrastructure can be deployed. A very simple, low cost 800-carrier allocation splits the call volume across the nodes. Load balancing software native to the integrated ACD/PBX makes agent and call selection decisions across the application nodes. The transmission of these load-balancing calls occurs over circuit switched or IP based facilities. The gateway in the node that accepts the original inbound call physically provides the queuing and call treatment, even though the caller may be logically queued in the second node. Advanced reporting consolidates the reporting across the two nodes, and system management tools manage the two nodes as one conceptual system.

This high capacity option is shown in Diagram 4.

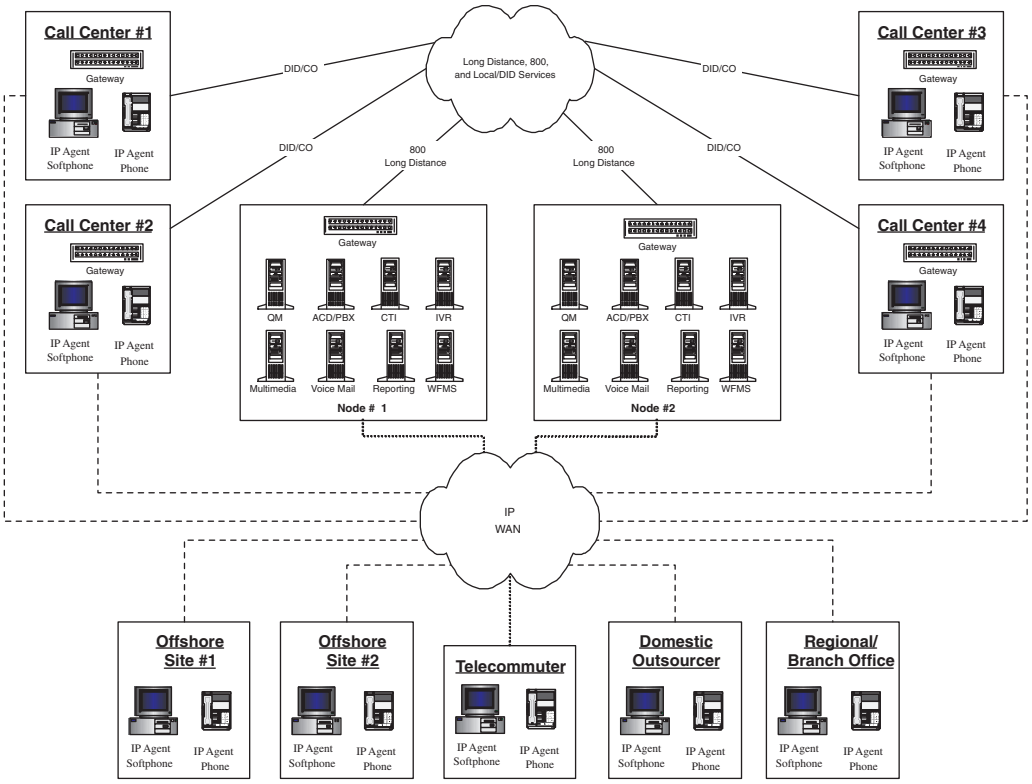

Diagram 4: High Capacity Option

High Availability Options

The new multi-site call center model has numerous options for high availability and business continuity.

IP agent phones can re-register to alternative nodes in the event of node loss. Another resiliency strategy is to intersperse the 800/long distance gateways from each application node at each centralized infrastructure location. With this approach, there is a full meshing of ACD/PBX servers and gateways across the enterprise.

The gateways can be made survivable to help harden this architecture. Gateways can be designed to contain a standalone-processing complex. In the event of network or centralized site loss, the remote gateway becomes operable as a standalone ACD/PBX, providing the call processing function of the main ACD/PBX server. Alternatively, spare ACD/PBX servers can be placed strategically around the WAN to take over the call center processing function. Regardless of the placement of the standby-processing complex, the intent is the same: Deliver operational resiliency and business continuity. Used in conjunction with 800 number

redirection services from an interexchange carrier, the spare processing servers and interspersed gateways aid an organizations disaster recovery planning.

Gateways can be configured to support a mix of TDM and IP based telephones. In the event of a data network impairment (i.e. virus, denial of service attacks), the TDM based devices continue to function.

800 carriers, long distance carriers, central office access, points of presence, and building access points can all be diversified to increase operational resiliency and business continuity options.

High availability design options are highlighted in yellow in the following diagram.

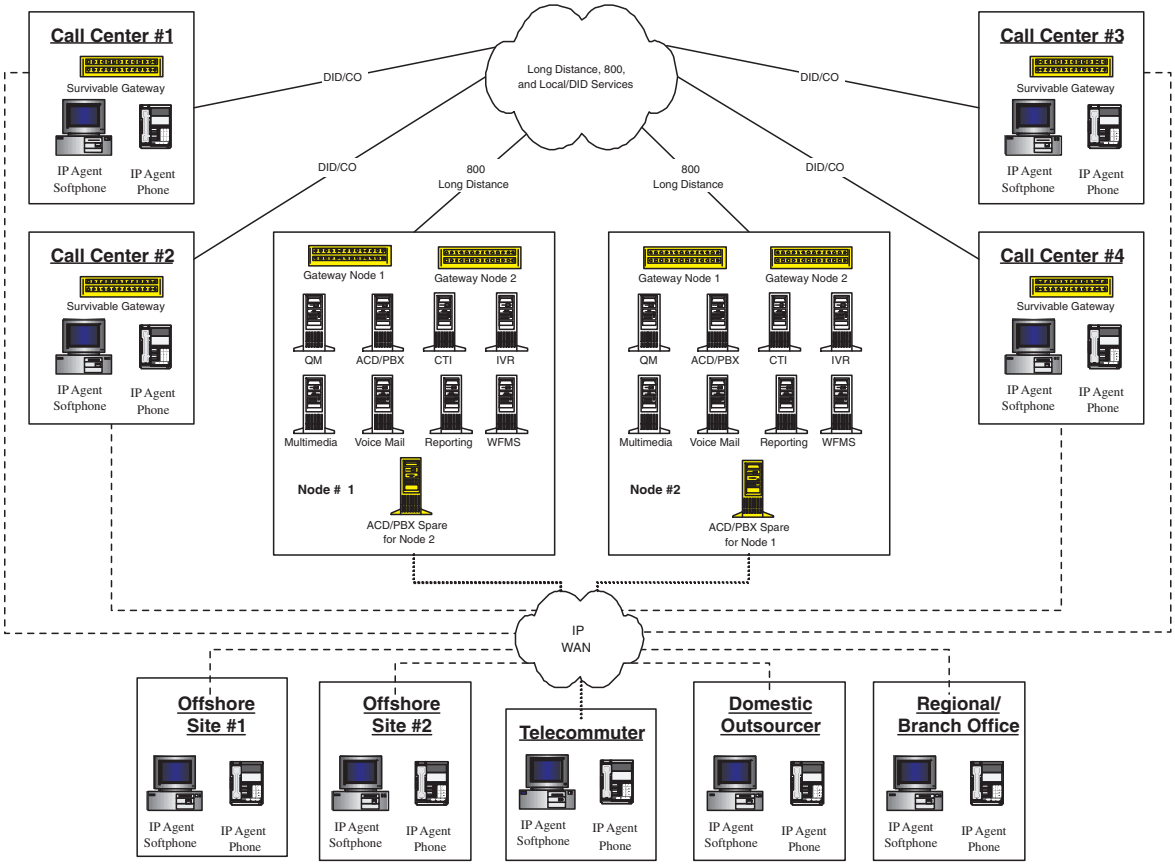

Diagram 5: High Availability Options: Survivable Gateways, Spare Processors, and Gateway Meshing

A technology comparison of last decade's three tier multi-site call center approach and today's "Flat, Consolidated, and Global" option is shown below in the following table:

Technology Characteristic	Three Tier (1990s)	Flat, Consolidated, and Global (2003+)
Integration effort	High – custom CTI software and APIs	Low – standard network protocols from TCP/IP suite
Voice Transport	Circuit Only	Circuit or Packet
Multi-site Functionality	Least Common Denominator, normalized across disparate platforms	Rich, robust and deep functionality across a single platform
Queuing	Multiple queuing points because of multiple standalone ACDs	True single queue operation on one integrated ACD/PBX
Routing Layers	Three layers of complexity: Carrier, CTI, and ACD	Single layer of elegance :Integrated ACD/PBX
Site Infrastructure	ACD and supporting applications at each site	Simple agent endpoints
Reporting	Rationalize and consolidate 3 disparate layers of reports	One enterprise layer of reports
Support	Distributed in each site	Centralized at data center
Total Cost of Ownership	Relatively High	Relatively Low
Manageability	Brittle, Inflexible	Resilient, Flexible
Application Infrastructure	Server Proliferation	Server Consolidation
New Site	Invest and Implement Again	Extend the existing applications
Network	Tiered, Hierarchical	Flat, Distributed
Telephone Sets	Agent Only	All Users
Upgrades	Expensive and time consuming	Cost effective and minimal time investment

Section 7: Cost Justification

Migrating to today's flat, consolidated, and global multi-site call center network is frequently cost justified in less than twelve months. The following sections highlight areas for potential expense reduction.

A. Flatten the Network Hierarchy

By eliminating the CTI based Network Routing Application and the special carrier related charges, cash flow may be recovered from the following activities and line items.

Support related:

- Administration of the Network Router and the monitored IVR and ACD devices
- Maintenance
- Upgrading for application fixes
- Upgrading for security fixes
- Upgrading for new functionality
- Upgrading to stay supportable

Infrastructure related:

- Physical servers for the Network Routing Application
- Centralized Network Routing Application
- Network Router Reporting Application
- IVR Network Router Interfaces
- ACD Network Router Interfaces
- ACD reporting system Network Router Interfaces
- Vendor maintenance fees
- Supporting Software: Operating Systems, Database Management Systems, Web Servers
- Upgrade/Refresh Fees
- Signaling System 7 links
- Per call carrier dip charges
- Per call network transfer

B. Consolidate applications across multiple locations

By using a server consolidation management philosophy, less capital is allocated to infrastructure and application software licensing. Operationally, server consolidation lowers support costs. Applications that should be considered for consolidation include:

- Standalone PBX
- PBX Voice Mail systems
- Standalone ACD
- ACD Voice Mail systems
- Overhead paging systems
- Quality Management System
- IVR
- CTI servers
- Reporting
- Workforce Management System
- Multimedia contact handling (email, chat, and web interactions)
- 800 and Long Distance Trunking (Erlang B effect)
- Application Ports: Voice Mail, IVR, and Quality (Erlang B effect)

Application components to consider include:

- Physical Servers
- Application software
- Supporting Software: Operating Systems, Database Management Systems, and Web Servers
- Maintenance fees

For each of the applications listed above systems, potential operationally savings include a reduction of the following IT staff tasks:

- Administration
- Maintenance
- Upgrading for application fixes
- Upgrading for security fixes
- Upgrading for new functionality
- Upgrading to stay supportable

C. Globalize call center operations

By operating on a global basis, an enterprise may be able to:

- Remove 30% of the cost of running a call center operation while improving service quality
- Decrease turnover and the associated hiring and training costs
- Increase the agility and flexibility of call center operations
- Enable a worldwide single queue operation
- Implement one set of enterprise business rules for process consistency

Section 8: Avaya Differentiators

Avaya is uniquely positioned to flatten, consolidate, and globalize a multi-site call center operation by providing the following competencies:

- Industry leading agent and call selection criteria. The decisions based on these criteria govern the assignment of work; Avaya uses unique predictive technologies to make superior, business impacting decisions. A patented Avaya software module, Avaya Business Advocate, minimizes the effects of random call arrival and random agent availability. This exclusive Avaya software manifests itself in improved match rate between customer segments and agent segments, reduced abandon rates, lower average speeds of answer, higher agent occupancy rates, and lower maximum delays.
- An extremely robust and reliable call center feature set. A result of more than 25 years of organic software development, this application software offers over 700 features and is operational in the most

challenging production call centers around the globe. The software code currently runs more than 26,000 call centers around the world.

- Massive scalability for the multi-site call center provided by Avaya's integrated ACD/PBX, Avaya Communication Manager (ACM). A single instance supports up to 5,200 agents, 8,000 trunks, 3,000 native prompts and announcements, 25,000 queue slots, and up to a 300,000 busy hour call completion rate.
- Simple, elegant application infrastructure. This design delivers full scale on a single set of stateful fail over, Linux based, server appliances.
- Highly secure application processing. The Avaya processing complex can be completely isolated from the corporate LAN/WAN if desired, and IP phone conversations completely encrypted to prevent eavesdropping.
- Network agnostic architecture supports a range of configurations from 100% IP, 100% TDM, to any mix in between. Avaya's call center philosophy is to define the problem, develop a solution, and then determine the appropriate network transport. Sometimes the decision is all IP, sometimes it remains TDM -most frequently it is a mix of both. It is only within the context of a larger call center business problem that the transport technology has any relevance.
- Services including application and network design, integration, implementation, security, business continuity, maintenance, and support are available globally. Whether a customer chooses to work with Avaya directly, or an Authorized BusinessPartner, a complete suite of professional services is available to keep call center solutions running at peak performance.

Section 9: Summary

Technology drivers were the validator for the three tiered, best of breed approach during the 1990's. That design philosophy served a variety of organizations well during that time period.

However, new technologies and changing business drivers are leading organizations to transition to a flat, consolidated, and global models. This new paradigm removes significant operating expense from an enterprise, vastly simplifies the application and network infrastructure, and facilitates new call center operating models such as agent offshoring. This new architecture enables new models for running call centers that dramatically reduce costs, as well as increasing the organizations responsiveness to marketplace changes.

About Avaya

Avaya enables businesses to achieve superior results by designing, building and managing their communications networks. Over one million businesses worldwide, including more than 90 percent of the FORTUNE 500®, rely on Avaya solutions and services to enhance value, improve productivity and gain competitive advantage.

Focused on enterprises large to small, Avaya is a world leader in secure and reliable IP telephony systems, communications software applications and full life-cycle services. Driving the convergence of voice and data communications with business applications – and distinguished by comprehensive worldwide services – Avaya helps customers leverage existing and new networks to unlock value and enhance business performance.

reach AVAYA

a higher plane of communication

IP Telephony | Contact Centers | Unified Communication | Services

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