

STATE DATA CENTER 2009-2011 RATE METHODOLOGY
Revisions Adopted June 28, 2010

ADMINISTRATIVE OVERHEAD

SERVICE AREA DESCRIPTION:

Administration is made up of the Administration staff, Plans and Controls, Operations, and Security.

METHODOLOGY:

1. SDC Administrative Overhead costs are distributed to the service areas based on the following allocation method except for those direct costs that are associated with the service area. Each service line's historical actual expenditures for Personal Services, Services and Supplies, and Capital Outlay added together minus debt service and pass through from the last biennium will be used as the basis of the allocation.
2. DAS Operations transfers are charged to the State Data Center. Such transfers will be allocated to the State Data Center service areas based on documents required for each of the areas as presented by DAS. (Documents can be the number of invoices, paychecks, etc. for the service lines.)
3. SDC uses DAS guidelines for forecasting personnel costs in the FY 2011.
4. SDC floor space and building rent are applied at different rates based on whether the area is designated for computing or non-computing. The computing area consists of the raised floor (15,691 sq. ft.¹) and infrastructure areas (10,635 sq. ft.). These areas are allocated to the service areas and a rate applied. The remaining non-computing floor space (office areas, hallways, conference rooms, etc.) (19,475 sq. ft.) is allocated based on occupancy.
5. The State Data Center is a self support building and all facilities-related expenses (repairs, maintenance, yard service, etc.) are paid solely by State Data Center. Rent calculations for the raised floor and infrastructure area are based on the following square footage occupied by specific domains:

Domain	Occupied Raised Floor Footprint (in square feet)	Percentage
Storage Systems	2,560	41.2%
Distributed Systems	2,992	48.1%
Mainframe System	168	2.7%
Midrange Systems	500	8.0%
Total	6,220	100.00%

¹ The raised floor space of 15,691 includes the occupied areas by domain infrastructure and common areas within the raised floor area, such as aisles.

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MAINFRAME COMPUTING

SERVICE AREA DESCRIPTION:

The Mainframe system collects computer processing data every time a user logs into the computer, executes a job, runs reports, or does queries with online files. Usage information is assigned to an agency based on the logical partition (LPAR, where the usage information resides), application name, or user name. The Computer Processing Unit (CPU) usage data is reported daily.

zVM Hosting is available for an agency's customer or licensed software. The customer will be given one or more zVM instances (referred to as Guest Level zVM) running within the SDC zVM instance (referred to as Host Level zVM). Due to the possible variances in requirements customer rates will be developed for each application hosted in this environment.

METHODOLOGY²:

Rates are determined by dividing the estimated program costs by the unit counts to determine a cost per CPU.

COUNTS:

The counts are based on an average daily CPU minute, converted to a monthly CPU count, based on a 16-month average from November 2008 through February 2010.

MIDRANGE SYSTEMS

SERVICE AREA DESCRIPTION:

Midrange Systems are systems that run UNIX or IBM System i.

METHODOLOGY (See Footnote 2):

The capacity methodology for midrange systems was changed at the beginning of the 2009-2011 biennium. The methodology, as outlined in Table A on the next page, will be continued for FY 2011. Agency cost represents the sum of dedicated LPARs and the portion of each shared service they use. Rates are determined by dividing the estimated program costs by the estimated units.

Descriptions of the midrange calculations are found in Tables 1 and 2 on the following pages.

COUNTS:

Updated counts were determined to be allocated on July 1, 2010, and any known forecast usage coming online or offline during the fiscal year. Counts will be locked in for 12 months. SDC will monitor capacity on a monthly basis.

The file will include the following assumptions:

1. BHIP project – both Dev and Prod – will be online July 1, 2010
2. Employment I&AM project – Two LPARs for Dev will be online July 1, 2010; 4 LPARS for Test and Prod will be online January 1, 2011
3. DCBS Oracle LPAR will be online July 1, 2010. They will not be in the shared Oracle environment and they will be managing their own database. To compensate for this, they

² Software pass through is covered under the section titled "Pass Through".

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are charged at the Standard factor (1.0) rather than the 1.2 (Midrange Supported Application) factor.

4. Parks Department's Solaris servers go offline August 1, 2010. Their Oracle databases go offline January 1, 2011.
5. Oregon State Police will be off of Midrange as of June 2010.

TABLE A – Calculating Midrange Units

Step 1. SDC allocated the CPU³ to an LPAR.

The CPU allocated is based on initial customer requirements. The allocated CPU can change when the application requires additional computing capacity. For billing purposes the CPU allocations are locked at the beginning of the fiscal year.

Step 2. Apply the weighting factor.

The weighting factor is used as a means to normalize the computer processing rate across different platforms. The weighting factor for each platform is.

IBM pSeries CPU ⁴ :	15
IBM iSeries CPU ⁵ :	10
Legacy CPU:	3

Step 3. Calculate the weighted CPUs.

Example: (nCPUs x Weightfactor = nBilling Units) x Rate = \$Monthly Charge

(2 CPUs on IBM pSeries x 15) = 30 BillingUnits x \$520 = \$15,500 (Billing Code: MIDSTD)

(2 CPUs on IBM iSeries x 10) = 20 Billing Units x \$520 = \$10,400 (Billing Code: ISRSTD)

(2 CPUs on Legacy System x 3) = 6 Billing Units x \$520 = \$3,120 (Billing Code: MIDSTD)

Step 4. Calculate the Supported Applications Factor.

This factor is derived by applying costs for the system relative to the required administrative overhead. The Supported Application Factor is calculated by multiplying the number of Billing Units times the Application Factor times the rate. The following represent the Application Factors:

iSeries:	2.00
Non-Std/Legacy UNIX:	0.50
Midrange Supported Application:	0.20

Example: nBilling Units x Application Factor x Rate = \$Monthly Charge

Non-standard Legacy support 0.5 units x 6 weighted CPUs X \$520 rate = \$1,560 (Billing Code: MIDNSD)

iSeries support 2.0 units x 20 weighted CPUs X \$520 rate = \$20,800 (Billing Code: ISRADD)

³ CPU = Computing Processing Unit.

⁴ The weight factor for pSeries was adjusted from "10" to "15" to reflect the actual calculations used in the rate setting process.

⁵ The weight factor for iSeries remained at "10" to reflect the actual calculations used in the rate setting process.

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TABLE B - Shared Services Environment:

When customers are part of a shared environment, the cost of the determined by certain factors: database (DB2, Oracle, Sybase), web, or TSM backups.

Database charges: For database charges the process is the sum of charges from two calculation steps:

Step 1: each applications database size is divided by the total of all application database sizes to obtain the application's share of 80% of the total environment server charge for the pool,

Step 2: the remaining 20% of the total environment server charge for the pool is distributed to the application by multiplying the 20% portion by 1 / the total count of databases in the pool.

There are three database pools DB2, Oracle, and Sybase. On the invoice you can drill down on "APPLNAME" to see the distributions by database name. Note, database size includes size of support files, i.e. logs etc, as well as the actual size of the database.

Web charges: Web charges are based on the total bytes transferred for an application is divided by the total bytes transferred for the environment to determine the application's share of the Web environment charge.

TSM Backup charges: These charges are based on the total bytes in Tier 4 storage for a customer is divided by the total bytes in Tier 4 storage to determine the customer's share for the TSM Backup server pool.

DISTRIBUTED SERVICES SYSTEMS

SERVICE AREA DESCRIPTION:

Distributed Services Systems represents the wintel-based computer processing servers. The systems can be standalone or in a shared environment.

METHODOLOGY (See Footnote 2):

Rates are determined by dividing the estimated costs of the program by the estimated number of billable units to derive a cost per server. At this time, there is no rate difference between a standalone, blade or virtual server.

A separate rate is calculated for remote servers. Remote rates excluded the cost of SDC floor space/rent from its calculations. The definition of remote is any server under SDC's responsibility that is physically not on location at the Data Center or Labor and Industries Building.

Spare servers that are dedicated for a specific agency use will be charged a server rate. Spare is defined as a server that is available to be put back into use upon agency request. Servers that are held for replacement parts are not considered spare servers.

At this time, there is no rate/charge for Reverse Proxy Server or for virtual appliances.

COUNTS:

Server count forecasts for DHS, DAS, DOR, DCBS, DOE and ODOT are based on the number of servers in use as of May 2010, plus any known future requests. All other agencies are an average of server counts from July 2009 through February 2010. Counts will be refreshed monthly for billing purposes. Servers used to support various functions of SDC domains will be charged back to those domains.

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A separate rate is calculated for remote servers. Remote rates excluded the cost of SDC floor space/rent from its calculations. The definition of remote is any server under SDC's responsibility that is physically not on location at the Data Center or Labor and Industries Building. The forecast is based on February 2010 counts, except for DHS and DCBS. DHS has 119 servers that are added for 10 months for FY 2011. DCBS remote server count is based on May 2010 data.

STORAGE SYSTEMS

SERVICE AREA DESCRIPTION:

Data storage is located in two environments: disk storage and tape storage. Disk storage can be local storage (within the processor) and it can be attached to the Storage Area Network (SAN). Tape storage can be on-site or off-site. It is assumed that everything on disk is backed up to tape.

Distributed Systems customers will be charged for allocated usage attached to the SAN and the tier is known. When usage is not known, it will be assumed 80GB for local storage, to be charged at Tier 2 rate. Servers located at the SDC may have both SAN attached storage and local storage.

Midrange Systems customers will be charged for allocated usage when the storage is attached to the SAN and the tier is known. Local storage on Midrange devices will be billed at Tier 2 rates.

Mainframe Systems customers will be charged for allocated usage when the storage is attached to the SAN.

When storage is allocated for a device shared by multiple customers, the storage charges will be allocated to those customers on the percent utilized of the total allocated storage.

Tier 4 and Tier 5 tape is retained and the agency is charged stored tape data for 1 year beyond the date of server decommission, unless the requesting agency specifies a different date the data should be purged. The date the data is requested to be purged should be part of the RT ticket request decommissioning the server.

SDC has initiated a revised configuration standard on remote servers whereby a copy of the Acronis image is stored on the device to facilitate restoration. For these circumstances, the image would be stored in its own 20 GB partition of the allocated local storage and that partition's storage costs will not be billed to the customer.

Characteristics of disk tiered storage are:

Tier 1: Highest performing disk storage, fibre connected, fibre channel disk. Disk storage is internal to the Hitachi USP. All components are fully redundant. It is suitable for customer facing, high volume application requirements and key infrastructure applications. Mainframe disk storage is designated as Tier 1 storage.

Tier 2: High performing storage, fibre connected, fibre channel disk. Storage is external behind the Hitachi USP with redundant major components. It is suitable for all but the highest performance requirements and is a cost-effective solution for average volume and reporting application requirements. Midrange systems and local storage, including local storage on remote servers, will be designated and billed as Tier 2 storage.

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Tier 3: Standard performing storage, fibre connected, SATA disk. Storage is external behind the Hitachi USP with redundant major components. It is suitable for reporting and historical data.

Characteristics of tape storage are:

Tier 4: On site tape.

Tier 5: Off-site tape. Mainframe and i Series tape stored off-site will not be billed until capacity information can be collected and customer ownership verified.

METHODOLOGY:

Rates are determined by dividing the estimate program costs by the estimated units. Expenses were allocated across the tiers based on industry standards.

COUNTS:

Storage usage is allocated and usage is measured monthly. Tape usage estimates were originally based on disk usage.

- Tier 1 counts are based on an 8-month average from July 2009 through February 2010. Tier 2 counts are based on February 2010 counts plus a 79% increase for February through June plus a 30% annual increase for FY 2011, except for DHS. DHS is forecast at 40 Tb as of December 2010.
- Tier 3 counts are based on February 2010 counts plus a 65% increase for February through June plus a 30% annual increase for FY 2011.
- Tier 4 counts are based on February 2010 counts plus a 3% increase for February through June plus an 8.5% annual increase for FY 2011.
- Tier 5 counts are based on February 2010 counts plus a 1.4% increase for February through June plus a 4% annual increase for FY 2011.

NETWORK SERVICES (INC. VOICE)

SERVICE AREA DESCRIPTION:

Network Services consists of the data network and voice services. Network services staff manage the State's network backbone and contracts for telecommunications and voice services.

Network services have four separate charges:

- Combined Core and Remote rate. This rate covers the basic network access to the internet including management, remote routers, switches and equipment upgrades.
- Local Area Network (LAN) rate covers services that are only used by some network customers. This expense was embedded in the rate for all customers and is now separated out and charged only to customers who receive the service. The 2007-09 charge was based on the customer agency's FTE, as a proxy for the number of computer ports connected to the LAN.
- Site-to-Site Virtual Private Network (VPN) service can be requested by customers who desire encrypted internet service. This is charged only to customers who receive the

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service. The monthly charge is for specific sites to which a secure network link is provided. Expenses associated with this service include the VPN equipment, software, maintenance, network management and equipment upgrades.

- Network Pass-Through. Frame relay charges, includes transport costs, taxes, interlata charges, installation and domain registrations. These are charged by the telecommunications vendors and passed on to the customer. A 5 percent charge is added on to cover the managing network telecommunications service contracts, attorney general fees associated with these contracts, and personal services to provision the services.
- DSL LAN is billed at the same rate as LAN ports. DSL LAN service is when the customer installs a DSL modem that points to the SDC host. It is sometimes referred to as “best effort DSL.”

Voice Services has two rates.

- Handsets: This rate is charged per telephone set with one line. A telephone set with multiple lines would be counted as multiple phone sets.
- Pass-Through Charges: This rate is passed through dollar-for-dollar by the vendor on services ordered by the agency. Expenses include long distance, calling cards, TSOs, 800 numbers, repair tickets, and directory listings.

METHODOLOGY:

The Combined Core and Remote rate is calculated for each bandwidth size. The weighted average is based on the number of customers by bandwidth.

The Core/Remote rate for 2 Mb was matched to the 1.5 Mb to reflect migration from frame relate to Ethernet technology which is not offered at 1.5 Mb speed.

All other rates are calculated by the estimated costs divided estimated units.

COUNTS:

LAN counts are based on a “per Active Port” base. The definition of Active Port is that it is connected and in use, meaning a computer or printer is plugged in to the outlet. LAN counts are based on counts taken June 2010. The measurement tool used recognizes any port used within the last 90 days.

VPN counts were refreshed June 2010. No changes were noted. Counts will be refreshed annually.

Core and remote bandwidth counts were based on the February invoices.

Handset counts were based on an average of handsets in use from July 2008 through December 2009. Handsets can be equated with a single line; if a handset has multiple lines, the monthly charge would be #lines x monthly rate. The counts were for on-net locations. “On-net” is defined as Salem, Portland and the Willamette Valley Corridor. Off net local costs are billed by the telephone company directly to the agency. Off net long distance costs are billed by DAS to the agency.

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PASS THROUGH

SOFTWARE PASS THROUGH:

Mainframe (IBM zSeries):

Mainframe software that was part of the initial migration to SDC is considered part of the Mainframe rates and not passed through. Maintenance, support or upgrade costs for these software licenses are considered part of the Mainframe rates.

New software licenses purchased on behalf of one or more specific user agency are considered pass through expenses to the customer agency/s. If all Mainframe user agencies can access the new software licenses, then the purchase becomes part of the Mainframe rates.

Midrange (IBM pSeries, IBM iSeries, Sun Systems) Systems, Distributed Services Systems:

Software specific to the customer agency is passed through to the agency. When agencies share an application, such as Oracle, the license and maintenance costs are also shared among those participating agencies.

Voice Circuits

The SDC is replacing core voice network equipment over the next 12-18 months with Voice over Internet Protocol (VoIP) equipment. In most locations, there will be no changes to user's telephone sets or systems but this migration will eliminate the need for voice circuits that carry calls to the end users location. After migration to the new equipment the telephone calls will be carried over the data network.

Voice Circuit costs will be passed through to customers. In the past, such costs were embedded in the monthly hand set rate, also known as the *Flat rate* or *Basic Service rate*. The per hand set rate has been reduced from \$30 to \$27 from July 2010-June 2011 to account for the reduction in SDC costs and the increase in agency costs. For most locations after migration to the new equipment, these circuits will be disconnected and the circuit costs eliminated.

The July 2010 bill does include both the rate decrease to \$27 and the charge for circuits to each agency location.

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SDC POP 805 Project Criteria

Replacement of telecommunications and computing hardware prior to the funded equipment lifecycle and growth greater than planned are not covered by the SDC base budget. POP 805 limitation will be used in 2009-11 for these expenses and added to the SDC base budget for rate development purposes.

The following situations will use POP 805 limitation:

Included within Rates:

- Replacement of hardware prior to funded equipment lifecycle schedule due to growth, new features/functionality or other requirement due to customer request
- Purchase of new hardware for re-architected environment at customer request, growth or for new application/ business solution. Planned growth for 2009/11 does not include:
 - Growth above 8% for any new or replaced Distributed Server for each agency
 - Growth beyond equipped capacity for UNIX and iSeries servers as of July, 2009
 - Growth beyond equipped capacity on the Storage Area Network (SAN) as of July, 2009 (460 TB)
 - Growth beyond equipped capacity for Mainframe as of the fall 2009 upgrade (1,645 MIPS)
 - New agency location requiring a phone system, WAN network connectivity, security devices or LAN switching
- Software licenses, covered by rates, required for growth or replacement as described above
- Training for SDC staff for new technology required to support customer requests

Billed to Agency as Pass-through:

- Vendor services and software billed under the standard rate model as pass-through
- Agency specific software on the Mainframe based on agency requirements
- Professional services used to design, architect, develop, deploy and implement replacement of hardware/software outside of equipment lifecycle schedule, new hardware/software due to re-architecting, growth, new application/business solutions.
- Misc Services and Supplies (S&S) such as cabling, racks or other subcomponents required in support of projects described above
- Software licenses, normally covered by rates, outside of SDC standard based on customer requirements (example, customer requires Windows Server 2008 R2 which is operationally useable but Windows Server 2008 is the SDC standard)

Direct Charged to Agency:

- SDC staff time for consulting, design, development and implementation which requires more than 10 hours of time for existing applications and over 10 cumulative hours for any new projects

Request Fulfillment Criteria

The State Data Center (SDC) request fulfillment process starts when a customer identifies a need and notifies the SDC that SDC services are necessary. The SDC works with the customer to determine configuration requirements, then SDC architects a solution and builds a solution.

As many of these solutions include several SDC services, billing may begin at different times for the services that are required for a specific solution. Billing starts at the stage each resource or service can or is used by the customer. There are three main types of service:

- Allocation – Billing begins at the point resources are allocated to and available for use by the customer. This includes SAN storage.
- Usage – Billing occurs when the customer uses the service. This includes mainframe, tape storage, long distance and 800 service.
- Asset Based – Billing begins with asset based services when the asset(s) configuration is complete and the asset(s) or service the asset(s) provide are available for customer use. This includes telephone and network services and distributed and Midrange servers.

As the SDC provides the infrastructure on which customers run applications, application development projects are frequently in the development phase when the SDC begins billing. In the least complex of circumstances it can be hours or a few days from the time the SDC hands over a service to a customer to the point at which a customer can complete any work they need to perform and complete the project with the application moving from development to production status. In the most complex of circumstances it can take a customer months or even years from the point at which the SDC hands over a service until an application moves from development to production status.

Once a service is available to a customer, further configuration changes may be required. As a service provider, the SDC classifies these changes as operational in nature when compared with the customer perspective they may be considered development work.