

STATE DATA CENTER FY 2011-2013 RATE MODEL METHODOLOGY

ADMINISTRATIVE OVERHEAD

SERVICE AREA DESCRIPTION:

Administrative Overhead are the costs assigned to Administration, Plans and Controls, Support Services (Command Center), 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. Annually, 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 24 months will be used as the basis of the allocation.*
- DAS Operations transfers are charges 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.)*
- SDC uses DAS guidelines for forecasting personnel costs in the FY 2011-13 biennium. The forecast assumes: (a) no furloughs will be scheduled for FY 2011-13; (b) the freeze on cost of living and Step salary increases is removed; and (c) PERS charges will be rising. The rates were adjusted accordingly based on the outcome of the Legislative Adopted Budget*
- 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.²) 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.
- 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 Methodology changes are in italics and bold font.

² 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.

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.

METHODOLOGY:

1. Rates are determined by dividing the estimated program costs by the unit counts to determine a cost per CPU with no normalization factor.
2. In FY 2009-11, software cost increases were assumed due to at least two forecasted Mainframe upgrades in the biennium. *In FY 2011-13, it is assumed there will be at least one (1) forecasted Mainframe upgrade.*
 - 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. In cases where agency-purchased software was transferred to SDC and it can be identified to certain agencies, those costs may be passed through to agencies using that software and those costs will be excluded from rates. An example is IBI software where budgeted costs for the biennium only equal one year renewal. In FY13 any IBI costs will be passed through to the agencies using the software at that time.
 - 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.
3. Allocation of Production Control FTE to Mainframe Computing will be continued.

zLinux

Linux (zLinux) runs in the mainframe environment, but the billing unit calculations are separate from the mainframe systems environment.

1. *The allocation in the Linux (zLinux) environment is based on the the zLinux environment divided by the total number of units assigned. In our current environment a maximum of 20 Linux guests (“units”) can be hosted but only 9 are assigned for billing purposes. ODOT has 8 units assigned and SDC has 6 units -- for 1 unit billable and the other 5 units used by the mainframe Linux group to support their operations.*
2. *Assigned zLinux guests will be billed at the same rate as local virtual servers.*

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DISTRIBUTED SERVICES SYSTEMS

SERVICE AREA DESCRIPTION:

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

Beginning with the FY 2011-13 Biennium, a tiered rate structure in this environment will improve cost allocation to appropriate services areas, promote the best use of resources, and reduce subsidization within the rate structure. The desired behaviors include:

- a. Virtualization wherever possible because of cost efficiencies, lower power and footprint requirements, higher availability and improved disaster recovery restoration*
- b. Ensure server size is appropriate for requirements and usage*
- c. Centralization and elimination of remote servers where possible*
- d. Reduce power utilization*
- e. Drive application compatibility with SDC standards*

To achieve this objective, the distributed server rates will be distinguished by the local and remote environments and by physical and virtual servers. The definition of remote is any server under SDC's responsibility that is physically not in SDC managed data center floor space

METHODOLOGY:

1. Allocation of program costs is based on Physical-to-Virtual counts. Certain costs for supporting a physical server are four times the cost to support a virtual server. The following cost categories are allocated using the 4:1 ratios:

- Hardware – represents depreciation and debt service interest.**
- Rent/power – represents the portion of SDC rent and power that is allocated to the Distributed Services cost center. Assignment of rent and power costs is based on number of physical boxes supporting physical, virtual, and appliances on SDC's raised floor. Rent/power costs are excluded from the remote server rates.**
- Other Supplies and Services (including software, software maintenance, and hardware maintenance costs) -- these costs represent the non-pass through costs for software tools used to monitor systems, operating systems, and hardware maintenance costs and any other supplies/services budget categories.**

The remaining costs are divided across the total number of servers, with no distinction made to physical or virtual. The cost categories for the 1:1 ratios are:

- Personnel costs – wages, salaries and benefits of employees assigned to the Distributed Services cost center.**
- Professional services – consulting costs**

2. Vendor owned equipment physically located at the State Data Center will be charged at the same rate as local physical servers when the State Data Center has some management responsibility for the equipment or services associated with these vendor owned equipment.

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3. *A rate will be charged for those servers that are solely owned and managed by vendors and physically located at the State Data Center. Examples are the DigiMarc servers and appliances (which don't involve depreciation). These servers only occupy space on the rack.*
 4. *When vendor owned and managed servers occupy a full rack, or in the case of MMIS servers, an entire row on the SDC raised floor, a per-square foot rate will be charged.*
 5. *Appliances (which are purchased by the agency and not depreciated by the SDC) located at the SDC will be charged at the same rate as vendor owned, vendor managed equipment located at SDC. A computer appliance is defined as a separate and discrete hardware component specifically designed to provide a specific computing resource and which resides on a dedicated hardware platform.*
 6. *Software costs charged back to the agency will be based on the total amount at the time the expense is incurred, rather than a pro-rated amount based on the number of months for the expense which was the methodology used in FY 2009-11.*
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MIDRANGE SYSTEMS

SERVICE AREA DESCRIPTION:

“Midrange Systems” are systems that run in the UNIX (“pSeries”) or IBM System i (“iSeries”) environment.

METHODOLOGY:

1. Software costs charged back to the agency will be based on the total amount at the time the expense is incurred, rather than a pro-rated amount based on the number months for the expense.
2. The Midrange Systems will continue to be charged the same rate.
3. *The factor of 10 used for calculating FY 2009-11 rates was removed for the FY 2011-13 rate model.*
4. The capacity methodology for midrange systems represents the sum of dedicated LPARs and the portion of each shared service they use. In the Midrange Systems environment, the assumption is that all applications reside on the pSeries or iSeries equipment. Rates are determined by dividing the estimated program costs by the estimated units.

Units assigned for Midrange Systems environment are determined through the following steps:

- a. *One base unit consists of 0.2 CPU and 4 GB RAM.*
- b. *Additional CPU and RAM units can be added to the base unit as determined by the application size or transactions. Additional CPU units are added at a 0.1 increment. Additional RAM units are added at a 0.1 increment, which represents 2 Gigabytes.*
- c. *The combination of “a” and “b” represents the “Base Allocated Units”(BAU).*

*Example: 1 base unit + .3 Additional CPU Units + .2 Additional Ram Units
= 1.5 BAU*

- d. *If the application requires additional level of staffing support, a non-standard operating system, or a discrete, dedicated environment, the BAU will be multiplied by an additional factor.*

d.1. The factor of 1.2 will be applied against the BAU in support of applications requiring staffing beyond the level necessary to install and maintain operating system and hardware. Examples of supported applications are: Websphere, Oracle, and DB2.

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d.2. A factor of 1.25 will be applied against the BAU if an application requires an operating system other than the current SDC standard (AIX System v. 5.3 or v. 6.1) or if a customer requires a supported application other than the current SDC standard (e.g. WebSphere 5 when the SDC standard is WebSphere 6 or 7).

d.3. A factor of 1.25 will be applied against the BAU if the customer requires the application reside in a discrete, dedicated environment. In such a circumstance, the CPU assigned cannot draw upon available capacity beyond what has been assigned in the event of heavy workload.

The final calculation will be:

$$BAU + [BAU \times 0.2] + [BAU \times 0.25] + [BAU \times 0.25] = TOTAL\ UNITS$$

Where BAU = 1 Base Unit + Additional CPU Units + Additional Ram Units

DISASTER RECOVERY

SERVICE AREA DESCRIPTION AND METHODOLOGY:

State Data Center uses a statewide price agreement for disaster recovery services. SDC worked with agencies to identify what services the agency requires, in addition to those services SDC requires. SDC coverage will be included in SDC administrative overhead and will include the SDC core charges, network connectivity charge and one (1) FTE. Agency specific charges will be charged back to the agency on a monthly pass through basis.

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 back 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.

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.

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

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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.

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 storage³ are:

Tier 4: On- and off- site tape. Back-ups are stored on tape for Distributed, AIX, iSeries, and Mainframe Systems. Daily back-ups are retained on- and off-site for 60 days. Long term back-ups are monthly back-ups, and, by default, retained both on- and off-site for one year. Agencies can request different retention periods.

Costs for the mainframe and iSeries tape stored off-site will be included in the general expenses of those two service areas.

METHODOLOGY:

1. Rates are determined by dividing the estimate program costs by the estimated units. Expenses were allocated across the tiers based on industry standards.
2. *Tier 4 – On-Site Tape Storage – and Tier 5 – Off-site Tape Storage – have been blended into a single rate for FY 2011-13.*
3. Encryption Rate for SAN and Tape cannot be establish at this time due to a limitation of the existing SAN Storage hardware, a need to define agency storage encryption requirements, and inadequate resources to fund tape encryption, purchase encryption licenses, and upgrade the USP. When these limitations are resolved, an encryption rate for SAN and Tape may be established.

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 several 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. Charges are based on the bandwidth of the services provided to the customer.
- Local Area Network (LAN) charges are based on the number of switches serving the agency. *LAN services include the purchase, administration and management of the Local Area network switching. This provides network connectivity between the point of demarcation at the agency site to desktops, printers and other computing devices. LAN services are only charged to the core eleven agency network customers. This service does not include cabling.*

³ All backups after the initial backup are incremental, including both daily and monthly. The only time after an initial backup is complete that a full backup is done is if there is a very significant change in the structure of the data such as reassigning a directory structure.

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- ***Site-to-Site Virtual Private Network (VPN)/Remote Firewall Services can be requested by customers who desire an additional layer of security and/or encryption between a remote office and other locations. This service is charged on a per site basis, based on the size of the switch serving the agency. Expenses associated with this service include the VPN equipment, software, maintenance, network management and equipment upgrades.***
- ***Client Based VPN Charges are when customers require VPN connections to the SDC VPN concentrator but for which the SDC does not manage the hardware at the remote site. Generally these customers are not the Core eleven agencies.***
- ***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 five (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.
- ***Wireless WAN are sites in which there is a core network connection to a specific building and satellite (wireless) connections to other buildings within the vicinity. State Data Center will establish configuration standards for the wireless connections and the agencies will be responsible for the wireless infrastructure, installation and maintenance. The core bandwidth connection charges will be apportioned based on the bandwidth required by the agencies in the vicinity connected to the Wireless WAN service.***
- ***Wireless LAN –also referred to as wireless access points – will continue be charged the same rate as FY 2009-11.***

Voice Services has two rates.

- ***Voice Flat Rate:*** This rate is charged per telephone set with one line. A telephone set with multiple lines would be counted as multiple phone sets.
- ***Voice 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:

1. The Combined Core and Remote rate is calculated for each bandwidth size. The weighted average is based on the number of customers by bandwidth.
2. The FY 2009-11 Core/Remote rate for 2 Mb was matched to the 1.5 Mb to reflect migration from frame relay to Ethernet technology which is not offered at 1.5 Mb speed. ***For FY 2011-13, the proposal is to make the 2 Mb rate progressively more than the 1.5 Mb rate.***
3. All other rates are calculated by the estimated costs divided by estimated units.
4. ***Voice over IP (VoIP) rate is not being proposed for FY 2011-13 but voice trunking costs are being moved out of the Voice rate and will be charged as pass-through. This will appropriately account for the costs associated with those locations served with VoIP trunking.***

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REQUEST FULFILLMENT CRITERIA (Carried forward from FY 2009-2011 Rate Methodology Document)

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. At the beginning of the delivery phase, the “start billing date” will be populated to commence in two weeks. It is conceivable that services may overlap while the customer is testing the new system. During this period, the customer will be charged for both services.
- Usage – Billing occurs when the customer uses the service. This includes mainframe, tape storage, and long distance and 800 voice services.
- 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.

AGENCY REQUESTS AND GROWTH

All SDC services include standard on-going maintenance appropriate for that service including break-fix and scheduled equipment lifecycle replacement based on available funding.

New service requests, upgrades and agency requests for equipment lifecycle replacement outside of funded schedules for labor, equipment and software are not included in SDC LAB limitation for FY 2011-13. Any of these requests made by the agency may require further documentation or presentation in support of SDC limitation increases by the agency to an E-Board or Ways and Means joint committee.

Equipment costs and software normally included in rates for new services and growth will be included in rates and the costs spreads across all users of the service for computing and storage services. Agency specific software will be charged to the agency on a pass-through basis. In the event actual requests exceed projections for a specific service area, SDC costs incurred may be dealt with on a case by case

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basis in a different manner including chargeback on a pass-through basis or deferral until a future budget period.

New agency sites or moves of existing sites which require new network or voice equipment are the responsibility of the agency and all associated costs will be billed on a pass-through basis back to the agency.

Out of schedule equipment lifecycle replacement requests made by the agency will be deferred until the funded schedule or charged back to the agency on a pass-through basis.

Labor for new requests, upgrades and other agency requests outside of standard maintenance are billable to the agency at the appropriate hourly rate. The methodology used to determine billable work is currently under review and will be published when finalized.
