

**A G E N D A**

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**METRO**

**Agenda**

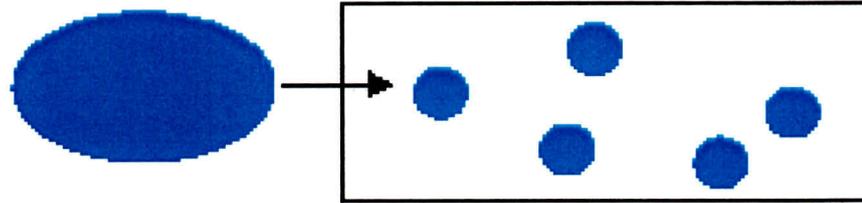
MEETING: METRO COUNCIL/EXECUTIVE OFFICER INFORMAL MEETING  
DATE: April 10, 2001  
DAY: Tuesday  
TIME: 2:00 PM  
PLACE: Council Annex

**CALL TO ORDER AND ROLL CALL**

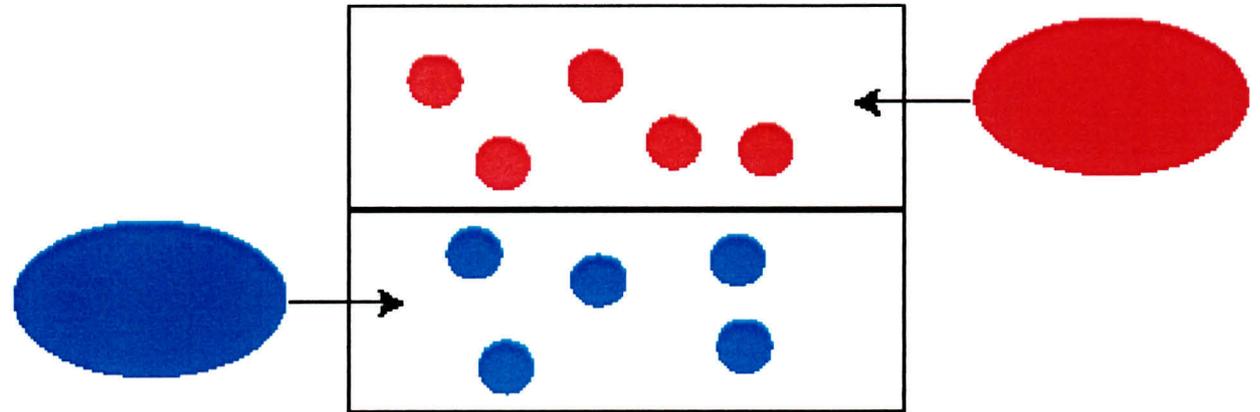
- I. UPCOMING LEGISLATION
- II. NOS PRESENTATION Biedermann
- II. OCC CONSTRUCTION UPDATE Williams/Schultz
- IV. EXECUTIVE OFFICER COMMUNICATION
- V. COUNCILOR COMMUNICATIONS

**ADJOURN**

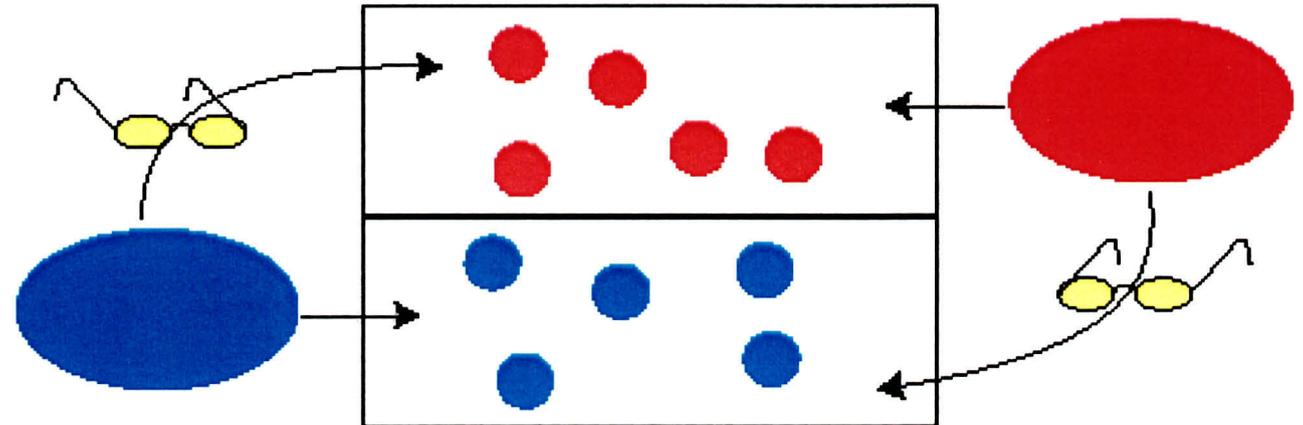
**1. Users are blue and use blue files.**



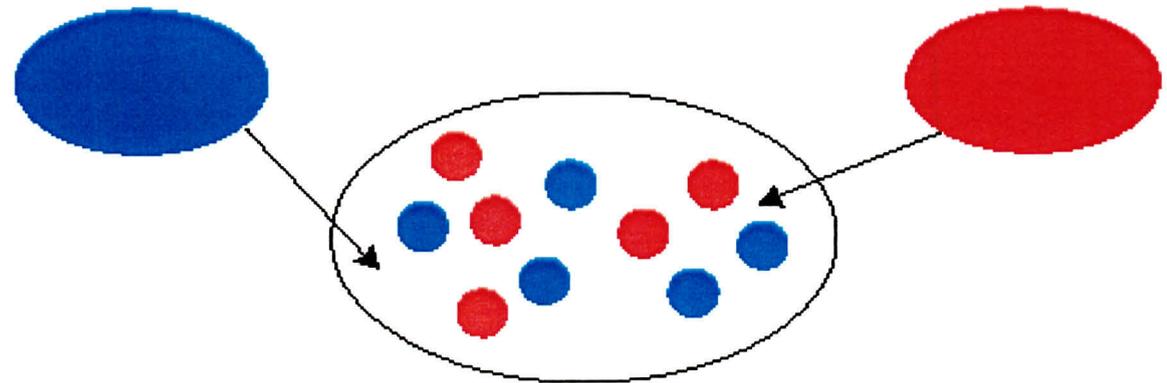
**2. Some users are orange and need to use orange files, so an orange network is added for them.**



**3. Some users now need to see orange and blue files, so they are given special software. Soon all users need to see orange and blue files so they can work together. Special software for all is expensive and inefficient.**



**4. The better solution is one network where everyone can use all the files without any need for special software.**



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## Appendix C: Cost Comparison Estimates

	Option 1 No Build		Option 2 Datawarehouse		Option 3 Microsoft		Option 4 Novell	
	# of	total cost	# of	total cost	# of	total cost	# of	total cost
<b>Hardware</b>								
Network Servers	Novell svrs (annual cost)	\$ 20,000	3 domain svrs	\$ 3,000	3 domain svrs	\$ 4,000		
Disk Storage	1 NAS file serv-500 Gb	\$ 90,509	1 NAS file serv-800 Gb	\$ 107,509	1 NAS file serv-500 Gb	\$ 90,509	1 NAS file serv-500 Gb	\$ 90,509
Additional Required Replacement (one time only)					PSoft Server change to NT	\$ 60,000		
	<b>Subtotal</b>	<b>\$ 110,509</b>		<b>\$ 110,509</b>		<b>\$ 154,509</b>		<b>\$ 90,509</b>
<b>Software</b>								
Software Licenses - Desktops			164 NT licenses	\$ 28,372				
Advanced Server license (Windows only)					Advanced Server (1)	\$ 4,000		
Datacenter software/hardware					Datacenter (1)	\$ 55,000		
Sequel Server lic. (5 enterprise)					Sequel Server (5)	\$ 55,495		
Software Licenses - Servers					Windows NT Server-(5)	\$ 4,995		
Security package	included		included		included		493	\$ 12,295
Client Licenses				\$ -500		\$ 7,500	493	\$ 4,289
Network file services (NFS)			included	\$ -	included			\$ 365
	<b>Subtotal</b>			<b>\$ 28,372</b>		<b>\$ 126,990</b>		<b>\$ 17,049</b>
<b>Maintenance</b>								
System maint						\$ 5,000		
servers								
storage		\$ 6,000		\$ 8,300				
User OS licenses	Annual Fee	493 users	\$ 11,438				493 users	\$ 11,438
GroupWise email/calendar	Annual Fee	627 users	\$ 11,637	627 users	\$ 11,637	\$ 11,637	627 users	\$ 11,637
PS/Unix				included		included	493	\$ 22,589
Directory serv.	Annual Fee						493	\$ 7,149
	<b>Subtotal</b>		<b>\$ 28,075</b>	<b>\$ 19,937</b>		<b>\$ 17,438</b>		<b>\$ 54,601</b>
Savings (eliminating NetWare fee & diff. storage cost)				\$ 17,438		\$ 17,438		
<b>First Year Cost</b>		<b>\$ 159,584</b>		<b>\$ 141,381</b>		<b>\$ 275,699</b>		<b>\$ 148,833</b>
<b>Annual Costs after first year</b>		<b>\$ 49,075</b>		<b>\$ 19,937</b>		<b>\$ 15,637</b>		<b>\$ 34,877</b>
<b>3 Year Cost of Ownership</b>		<b>\$ 257,733</b>		<b>\$ 181,255</b>		<b>\$ 306,973</b>		<b>\$ 218,588</b>

# Executive Summary

## **The Challenge**

Metro's Chief Operating Officer (COO) challenged the Information Technology Steering Committee to recommend a structure for Metro's Information Technology operations that established a single point of accountability, and to recommend a single Network Operating System for the whole agency. The Committee (ITSC) recommended creating an Information Technology (IT) Department, separate from the Administrative Services Department, whose Director would be accountable to the COO; the ITSC further recommended that the Network Operating System be the responsibility of this new IT Department. The Department was created in the spring of 2000. To the issue of the Network Operating System, the COO observed that, "...it was critical that the agency agrees on one agency-wide operating system and migrates toward that system as soon as possible." The IT reorganization represented the institutional change necessary, and this report is the blueprint for the technological steps required, to meet the Network Operating System challenge.

A Network Operating System (NOS) is the combination of computer hardware and software that controls how users access resources in their computing environment. A NOS manages access to enterprise databases, sharing of files with other users, printing, email, and browsing the Internet. The challenge was to identify how best to consolidate multiple operating systems into a single Network Operating System with the least possible disruption to existing operations and at a manageable cost.

## **The Approach**

Metro's Executive Officer established an Information Technology Steering Committee (ITSC) to advise him on matters of IT policy and direction. The ITSC, composed of representatives of each Metro department, established a NOS subcommittee to determine how to meet the challenge of consolidating operating systems. This subcommittee included ITSC members representing major Metro technology users, and IT support professionals, who met over the course of many months to analyze the current situation and investigate possible solutions.

The NOS subcommittee developed a set of nine major design criteria against which to measure different NOS alternatives: Interoperability, Sufficiency, Simplicity, Transparency, Affordability, Manageability, Security, Adaptability, and finally, how well an approach works with the "Givens" of our current mission critical applications. It identified four alternatives, which it examined in detail:

- No-Build Scenario
- The Datawarehouse
- Microsoft Server
- Novell e-Directory

The approach taken was to evaluate each alternative against the design criteria, to determine which offered the best solution in terms of both technological applicability and cost-effectiveness. In order to avoid moving Metro into unproven technology, the NOS subcommittee emphasized compliance with industry standards and reliance on proven technologies.

### **The Alternatives**

- **No-build**

This alternative would continue the status quo of maintaining two separate operating systems. This would result in higher costs, reduced system reliability, decreased productivity, and lack of transparency between systems and programs, and would therefore not resolve the problems the committee was charged with resolving.

- **Datawarehouse/Network Attached Storage**

The Datawarehouse alternative met all the subcommittee's criteria. The underlying premise of this alternative is that all files – of all types – will be stored and managed in a Network Attached Storage device, allowing all Metro staff to access any files for which they have security, regardless of the type of workstation they use. This provides for a solution that is the least disruptive, very adaptable to changes in technology, and at the lowest cost of all the alternatives. It has the further advantage of a proven track record at Metro, as the Transportation and Growth Management departments have used this system for two years without unplanned shutdowns.

The only significant shortcoming of this alternative is that future use of the GroupWise e-mail and calendar system will be limited. While Metro would continue to pay the vendor (Novell) for ongoing support and upgrade services, the email and calendar system is not interoperable with non-Novell components. Under this alternative, Metro will need to review its options for an e-mail service provider in the near future to determine how and where to proceed.

- **Microsoft Server**

The Microsoft Server alternative met all the criteria except affordability. This alternative is the most expensive of the four alternatives considered, with significant acquisition and implementation costs. In addition to issues of cost, there are performance and implementation concerns associated with converting to a Microsoft NOS. Implementation of a Microsoft NOS would require implementation in phases. This raises performance concerns, as a phased-in approach could lead to compatibility and support problems during implementation. The last phase would require implementation of the Windows 2000 Active Directory and Datacenter products, which are too new to have been accepted in the industry as reliable products. The Microsoft alternative would require extensive changes to Metro's existing hardware configurations, and would be a more complex and disruptive solution to implement and maintain, while not providing the service to all agency operations that the Datawarehouse alternative will provide.

There is an alternative to a complete Microsoft environment. That would be to install a Windows server as the basis for the NOS, essentially replacing the existing Novell

server with a Windows server. In this case, Metro would need to retain the existing Network Attached Storage device to operate its Unix-based systems, such as the Data Resource Center and Travel Forecasting. There would be no point in this, as the Windows server wouldn't provide any improvement to the Network Attached Storage approach. This would simply be an expensive redundancy that would not add value, only cost.

- **Novell eDirectory**

The Novell eDirectory alternative did not meet the criteria of interoperability, simplicity, or affordability. It would be less expensive than the Microsoft alternative over a three-year period, with lower implementation costs but higher annual maintenance costs; the ongoing annual costs increase the expense of this alternative in the longer term. In addition to cost, the main shortcoming of this alternative for Metro is the lack of its ability to support Unix workstations without complex work-arounds – if at all: Novell has released a product, “eDirectory” that does support Unix, but it is new to the market and is not in wide use yet. A complete Novell solution would not support Unix operations in Planning and at the Zoo, so was not considered as an option that would address the basic problem. The alternative would be to overlay eDirectory on top of the existing Network Attached Storage, which would (as in the second Microsoft alternative above) add cost and complexity without adding significant benefit.

### **RECOMMENDATION**

The NOS subcommittee recommends Metro proceed to migrate to the Datawarehouse as its Network Operating System, using a Network Attached Storage server to store and manage all files. This alternative provides both the best technical solution and the most cost-effective solution to the challenge of consolidating Metro's network operating systems. It will:

- improve network speed and performance;
- provide the most efficient system for IT staff to manage and maintain;
- cause little or no disruption to Metro's users during implementation;
- continue with a system that has already worked at Metro;
- allow all users to continue to use their current desktops and desktop software;
- create the ability for users to exchange files regardless of application, promoting interdepartmental collaboration on projects;
- provide the highest level of security of the four alternatives;
- be adaptable, or “scaleable,” to system expansions as they arise.

## Sustainability Efforts in OCC Expansion

### 1) Documentation:

- ◆ contracted with architect to document sustainability efforts
- ◆ principal design professional is LEED accredited

### 2) Location and site

- ◆ erosion and sedimentation control plan
- ◆ urban redevelopment
- ◆ near alternative transportation - light rail and bus lines
- ◆ bicycle storage, changing, and shower facilities
- ◆ landscaping with natural habitat vegetation
- ◆ landscaping and exterior design to reduce heat
- ◆ roof to meet "Energy Star" requirements - low emissivity and high reflectance

### 3) Water efficiency

- ◆ storm water management through rain garden
- ◆ reduced total suspended solids (TSS) and total phosphorous (TP) through storm water management system and rain garden
- ◆ implementation of EPA's Best Management Practices relating to storm water treatment
- ◆ water efficient landscaping
- ◆ employs strategies for water use reduction

### 4) Energy Efficiency

- ◆ peer review of building commissioning
- ◆ designed for energy performance
- ◆ reduced use of CFC -based refrigerants
- ◆ exceeds standards energy performance
- ◆ efforts to reduce all HCFC's & Halon
- ◆ policies for on-going measurements of energy usage
- ◆ certified as an "EarthAdvantage" building by PGE

### 5) Materials and Resources

- ◆ design for easy storage and collection of recyclables
- ◆ recycle up to 75% construction waste
- ◆ new materials have up to 25% recycled content
- ◆ use local/regional materials where possible
- ◆ use "certified" wood where possible

### 6) Indoor Air Quality

- ◆ designed to exceed standards of indoor air quality
- ◆ no smoking policy
- ◆ on-going monitoring of carbon dioxide
- ◆ construction indoor air quality plan
- ◆ use of low emitting materials with adhesives, sealants, paints, coatings, carpets
- ◆ install pollutant source controls at major entrances
- ◆ designed to meet thermal control standards

### 7) Other

- ◆ Metro recycled paint used where possible
- ◆ demonstration project for education of public
- ◆ permanent art of recycled contents