TO: ISO JTC1 Secretariat
ISO SC21 Secretariat
ISO SC6 Secretariat

FROM: OIW ULSIG

SUBJECT: Liaison on concept of new Strategy Board

An open OIW "birds of a feather" meeting was held on 8 June 1994 through 10 June 1994 in Springfield, Virginia. The meeting was sponsored by the OIW Upper Layers SIG and hosted by the Telenex Corporation. At the meeting several topics related to OSI upper layers were discussed, including a discussion on how the standards process might be improved. From this discussion, some suggestions were made.

It was felt by the attendees at the meeting, and later by the members of the OIW ULSIG in attendance at the June OIW, that these suggestions might be of interest to ISO members. Therefore, an abstract of these suggestions follows. The OIW ULSIG believes these suggestions might be useful.

We would like to enlist your support. We would appreciate any direction you can give us on how to proceed with these suggestions.

The nature of the problem
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The meeting started with a paraphrase of Einar Stefferud's now infamous line, "The OSI is a beautiful dream and the Internet is living it". The question was then asked, "Why? Why is OSI a dream and the Internet the real world?"

In answer to this question, the attendees produced a list of several basic assertions.

1. The terms "OSI" and "Internet" are often used in conjunction with each other. However, these terms do not describe like entities which should be compared. It was noted that the Internet protocols IP and TCP are layer 3 and 4 protocols, which often run over OSI protocols like X.25 and Frame Relay.

The term "Internet" refers to more than just a suite of protocols. The Internet is also a network. The term "OSI" refers simply to a suite of standards, and the organizations which developed them. OSI has no equivalent network.

Many of the current comparisons between Internet and OSI are invalid because there is no OSI network.

2. OSINET focuses on interoperability testing, instead of on establishing a generally available network (see 1) and encouraging prototyping new standards. If such a network could be used for prototyping, then practical implementation feedback would be more prevalent.

3. Unlike the Internet Society, which has a controlling entity named the IESG, the OSI standardization community has an open consensus process. Although such a democratic process

is good (and even necessary), it can have drawbacks because there is no responsible party to steer the technology.

4. Within the OSI arena, cost of participation, cost of obtaining the standards, and cost of creating implementations limits consultant and academic standards participation. Because of these costs and because there is no mechanism established, little user feedback has occurred.

5. In light of current implementation experience, adjustments are needed to the original 7-layer model; nevertheless many aspects of the model are still valid and should be retained.

A critical need exists for a new paradigm on which to compare current and future work.

6. Government/ISO project teams are needed. Some of these project teams might focus on interoperability testing, or other specific tasks. The EWOS project teams in Europe are an example.

7. Much of the OSI work has already been adopted by into the Internet suite of protocols, i.e. much of the Internet traffic is conveyed over X.25 lines or other OSI protocols, the TUBA solution uses CLNP,

RFC's exist to map OSI application protocols over TCP, etc. The convergence effort sponsored by the OIW may lead to a situation where OSI protocols play a larger role in the Internet network. Therefore, now is the time to develop or lobby existing useful, viable, OSI-based solutions to Internet problems.

Possible Solutions
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From these assertions, two solutions were suggested.

The first solution is to establish a generally available OSI network for prototyping standards as well as "open" interoperability testing.

The second solution is the creation of a new group, a Strategy Board, to help solve limitations in the OSI standardization process.

It was unclear which existing standards body might encompass the Strategy Board. It was noted, however, that the sponsor should be an international organization. Possible candidates for sponsorship include ISO, ITU-T, the regional workshops, the IEEE, OSINET, EUROSINET, and OSIONE. ISO SC21 seemed the most appropriate organization for such a board.

A proposal for the structure and charter of the Strategy Board could be circulated amongst all of these groups for input and/or any takers on the proposal. The main functions of the Strategy Board would be the following:

a) manage a database for documents (this would be publicly available);
b) manage a mail exploder(s) for announcements of documents;
c) develop and maintain a charter for the board; it is expected that research into the need for a new model would be part of that charter;
d) develop and maintain a strategy for an Open Systems Environment;

e) sponsor prototypes and demos;
f) develop marketing announcements and other miscellaneous public awareness tasks;
g) seek funding for work in Open Systems Environment; and
h) provide funding for the project panels outlined in 7 above.
i) establish a network; i.e., provide registration of addresses and maintain some routing information.

Functions a) and b) (above) address the problem of cost. Function c) address the development a new reference model. Functions c) and d) address the problem of strategy. Functions e) through h) address the problem of project teams, and function i) addresses the need for an OSI network.

OIW ULSIG "Birds of a Feather" Open Meeting
Meeting Minutes

The meeting was held on 8 June 1994 through 10 June 1994 at the Days Inn Motel in Springfield, Virginia. There were eleven attendees including the host, Laura Emmons from theTelenex Corporation. An attendance list is attached. There were thirteen input documents and three output documents from the meeting. An agenda and document list are attached.

The Process

The meeting started with a paraphrase of Einar Stefferud's now infamous line, "The OSI is a beautiful dream and the Internet is living it". The question was then asked, "Why? Why is OSI a dream and the Internet the real world?"

In answer to this question, the attendees spent the rest of the morning listing several basic assertions.

1. Definitions of OSI and Internet are mixed, and cause confusion. It was noted that the Internet protocols IP and TCP are layer 3 and 4 protocols, which often run over OSI protocols like X.25 and Frame Relay. The use of the term Internet refers to more than just a suite of protocols. The Internet is also a network, paid for by the US government, and provided free of charge to users both inside and outside of the US. The term OSI refers to a suite of standards, and the organizations which developed them, but has no equivalent network. Many of the current comparisons between Internet and OSI are invalid because there is no OSI network.

2. Unlike the Internet Society, which has a controlling entity named the IESG, the OSI standardization community has an open consensus process. Although such a democratic process is good (and even necessary), it can also be bad because there is no one in charge to steer the technology.

3. Within the OSI arena, the cost of use, cost of participation, cost of obtaining the standards, and cost of creating implementations limits consultant and academic standards participation.

4. Because of these costs and because there is no mechanism established, user feedback is not available.

5. OSINET focused on interoperability testing, instead of on establishing a network (see 1) and prototyping new standards. Therefore practical implementation type feedback was not possible.

6. In light of current implementation experience there are adjustments that need to be made to the original 7-layer model; nevertheless many aspects of the model are still valid and should be retained. There is a critical need for a new paradigm on which to compare current and future work.

7. Government/ISO project teams are needed. Some of these project teams might focus on interoperability testing, or other specific tasks such as those sponsored by EWOS in Europe.

8. We feel that much of the OSI work has already been adopted by into the Internet suite of protocols, i.e. much of the Internet traffic is conveyed over X.25 lines or other OSI protocols, the

TUBA solution uses CLNP, RFC's exist to map OSI application protocols over TCP, etc. The convergence effort sponsored by the OIW may lead to a situation where OSI protocols play a larger role in the Internet network. Therefore, now is the time to develop or lobby existing useful, viable, OSI-based solutions to Internet problems.

From these assertions, it was suggested that a new group, a Strategy Board, be created which would help to solve these shortcomings in the OSI standardization process. It was unclear which existing standards body should encompass the Strategy Board. It was noted, however, that the sponsor should be an international organization. Possible candidates for sponsorship include the regional workshops, the IEEE, ISO, ITU-T, OSINET, EUROSINET, and OSIONE. A proposal for the structure and charter of the Strategy Board could be circulated amongst all of these groups for input and/or any takers on the proposal. The main functions of the Strategy Board would be the following:

a) manage a database for documents (this would be publicly available);

b) manage a mail exploder(s) for announcements of documents;

c) develop and maintain a charter;

d) develop and maintain a strategy for an Open Systems Environment;

e) sponsor prototypes;

f) develop marketing announcements and other miscellaneous public awareness tasks;

g) seek funding for work in Open Systems Environment; and

h) provide funding for the project panels outlined in 7 above.

i) establish a network; i.e., provide registration of addresses and maintain some routing information.

It was decided that a liaison statement would be brought into the OIW ULSIG for submission to ISO suggesting the idea of the Strategy Board outlined above.

Other miscellaneous thoughts supplied by the attendees included the following:
a) the original Internet was a network of dedicated lines which were later replaced by a connectionless network. Change to OSI must also be evolutionary.

b) much of the code needed to hook up to the Internet is provided free with a purchase of UNIX. Why doesn't Microsoft provide mOSI as a part of MS-DOS?

Efficiency of the Upper Layers
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Following the discussions on the OSI standards process, the attendees turned their thoughts toward specifics in the upper layers. The discussion was started by a presentation on mOSI given by the OIW ULSIG chair, Jim Quigley from HP. Jim explained that mOSI is a profile of the minimal facilities needed from the ACSE, presentation, and session by a basic communications

application. A basic communications application is an application that only needs to open and close a connection, and to send and receive data. Jim claimed that mOSI was created because many implementors thought that they had to implement all of the features of a given protocol stack, instead of just those that were specifically needed by their application. He added that many implementors also thought that since the layers were distinct, the protocol machines they implemented for each layer also had to be distinct, instead of collapsing all of the protocol for the top three layers into a single protocol machine. These misunderstandings led to many inefficient implementations, but the protocols are not necessarily inefficient. Given that many applications today are client-server applications, they can be defined as basic communications applications. In addition, all Internet protocol suite applications (like X, SMTP, and FTP) are basic communications applications. Therefore the common upper layer portion of these applications can be defined by the mOSI profile, ISO/IEC pDISP 11188-3. An implementation of X over mOSI using X/Open's XTI/mOSI interface has been prototyped by a UK consultant, Peter Furniss, for HP and is now publicly available.

The following morning the discussion on upper layers continued with a presentation by Jon Stewart from NIST, who is also the OIW MDDI SIG chair, on common upper layer requirements for document interchange. Jon reiterated a point from Jim's mOSI presentation that whereas in the Internet protocols there are no common upper layer facilities that all application protocols use, in OSI protocols there are a distinct set of common upper layer facilities conveyed in the session, presentation, ACSE, RTSE, ROSE, and CCR services. Although this set of facilities may not be the best set, there was a consensus among the group that there is a need for such a common set of upper layer facilities. He added that he would like to see the set of presentation facilities expanded to include a more robust and powerful data description. Jon explained that SGML provided a good data description. One of the biggest needs he sees right now is for a common data conversion mechanism. Jon also pointed out that ASN.1 BER was not the best protocol syntax to use for ODA and raised the question if there is a better syntax which can more efficiently convey data objects.

At this point, the question was raised if there was a need for a new generation of upper layer facilities beyond those laid out in mOSI. If so, what might the requirements for such a set be?

Chuck Fisher answered that there was a need for a new generation. One of the strongest requirements he had encountered was the need for a connectionless upper layer environment. His customers had a scenario where they wanted to send broadcast mail without risk of an acknowledgment being returned by any receiving entity.

It was pointed out that many other requirements had been outlined during the first OIW ULSIG BOF and those should be included in the new list.

Quig also mentioned that when discussing a new generation of upper layers, it was important to distinguish between the different procedures for enhancing the standards. The first procedure is for small enhancements. It involves adding optional functional units to an existing service. The second procedure is for more complicated enhancements to an existing service. This would require a new version number be added. The last procedure is to write a whole new protocol and service definition.

There were several proposals for next generation upper layers presented. These included A^2CSE directly over Transport, FAST BYTE for Upper Layers (or ULPI), a single protocol machine protocol for all three upper layers (from Peter Furniss), and a proposal for indicating a

predetermined profile in a hashed value supplied on the T-CONNECT which would take the place of connection establishment for the upper layers. Copies of any/all of these proposals are available from Laura Emmons.

The following were consensus agreements from the attendees on a next generation of upper layers:

1. There must be a next generation of upper layers.

2. The next generation should be a new service/protocol. That is, it would support some sort of a graceful fail when communicating with legacy systems, but it would not be backwards compatible.

3. The essential requirements of such a service are the following:

a) reduced bandwidth;
b) all facilities must be optional;
c) layers must be optional;
d) reduce number of round trips to establish an association; and
e) provide connectionless service.

4. The facilities provided by a common upper layers should be the following:

a) recovery mechanism;
b) check point mechanism;
c) application identification;
d) message units/tagging mechanism;
e) orderly close; and
f) to send and receive data.

It was also suggested that the first step in writing the next generation of upper layers be to write a new model which could be used to evaluate new proposals for their usefulness. There was some agreement that this was a good idea but no consensus was formed. Laura was tasked with writing a discussion paper on the topic.

Efficiency in ASN.1

The Thursday afternoon session was started with a discussion of ASN.1 and its role in Upper Layers. Bancroft Scott, the editor of ASN.1, from Open Systems Solutions, Inc. gave a presentation on the new Packed Encoding Rules. Bancroft feels that by using the PER, an application could reduce its bandwidth by an average of 30-40%. He has also seen in prototypes that the code needed to decode PER runs approximately 100% faster than equivalent code needed to decode BER. Encoding is about 10% faster.

Another proposal, called GROUPED BITS, was discussed. The proposal attempts to create a mechanism in ASN.1 where a given abstract syntax can define that certain elements be encoded in a packed format, although the rest of the abstract syntax is not packed. Although it was acknowledged that this flexibility could be very useful, the proposal didn't consider how to

handle the encoding of an abstract syntax when using PER, or any other set of encoding rules besides BER. A newer proposal, ENCODE AS, was distributed which was more general than GROUPED BITS in that it could be used on several different data types besides BITSTRINGS and could be interpreted differently by different sets of encoding rules. These proposals will be discussed at the ISO SC21 meeting in Southampton, UK in July.

Role in the Information Infrastructure

The last day of the meeting was spent discussing the role OSI could play in the Information Infrastructure. It was pointed out that because so many of the OSI standards and protocols were already being incorporated into the Internet (see item 8 under The Process), OSI was already playing a role in the Information Highway.

The discussions focused on the final report from the Federal Internetworking Requirements Panel. It was agreed that the report documented some of the history of the standards work which has been done in both the OSI protocol suite and the Internet protocol suite. However, there were no clear solutions or directions outlined by the panel for the communications infrastructure of the future. It was felt by the attendees that the panel was not acting in the best long-term interests of the US. It was also pointed out that although the panel solicited input from international organizations such as EWOS, since they only allowed three weeks as a window for comments, most organizations did not have enough time to formally discuss and produce a response. It was suggested that the panel was not as oriented toward a global infrastructure as they should have been. It was also announced that a new organization has been formed to provide a more global and industry wide set of directions for the Information Infrastructure. This group, called the IPIR, will meet every Thursday of an OIW workshop week at NIST. Since members of the ULSIG are interested in the work being done in this organization, it was suggested that the ULSIG send a liaison to this new group asking that it be kept appraised of the progression of their work.

CONCLUSIONS
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A draft liaison shall be brought into the ULSIG for submission from the OIW to ISO on the Strategy Board concept. In addition, the liaison should suggest that a network be created for the purposes of prototyping and testing.

New work should begin on the next generation of the upper layers. Since the two main components for getting a dialogue started on this work are the creation of a publicly available document database and a mail exploder for announcements, it was suggested that the ULSIG subdir on NEMO could suffice as a database and the ULSIG will set up a mail exploder. Laura will start this dialogue by writing a discussion paper on a next generation model.

A draft liaison shall be brought into the ULSIG for submission to the OIW to the IPIR expressing shared concerns about the direction of the NII.

ATTACHMENT A
Attendance List

Laura Emmons	Telenex Corp.	laurae@ar.telenex.com
Jim Quigley	Hewlett-Packard	quigley@cup.hp.com
Debbie Britt	DIPC Newport(DOD)	DBRITT@NCTSEMH-Npt.Navy.mil
Klaus Truoel	EWOS	truoel@gmd.de
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Steve VanTrees	FAA/Stanford Tele.	vantrees@sed.stel.com
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ATTACHMENT B
Agenda

OIW ULSIG "Birds of a Feather" Open Meeting

AGENDA

Wednesday Morning, 8 June 1994 10:00 - 12:00 Virginia Room

Opening and Introductions

Is OSI really useful?
A look at the current reference model, and thoughts on how it might be updated.

Papers:

Agenda	ULSIG-156-06/94
Miscellaneous Thoughts	ULSIG-155-06/94

Wednesday Afternoon, 8 June 1994 2:00 - 5:00 Virginia Room

What can we do to expand the process and to increase participation?

Thursday Morning, 9 June 1994 9:00 - 12:00 Virginia Room

Who can benefit from a common upper layer architecture?
What are our essential requirements?
How efficient do we need to be?

Papers:

Extended ALS (for info only)	ULSIG-163-06/94
A^2CSE	ULSIG-162-06/94
Peter's Proposal	ULSIG-166-06/94
ULPI/Fast Byte UL	ULSIG-153-06/94
Hashed Value on T-Con	ULSIG-152-06/94
Formal Profiling Method	ULSIG-151-06/94

Jon Stewart will present ODA/MDDI requirements

Thursday Afternoon, 9 June 1994 2:00 - 5:00 Virginia Room

What role doesn ASN.1 play in Upper Layers Efficiency?

Papers:

Packed Encoding Rules (for info)	ULSIG-161-06/94
Grouped Bits	ULSIG-160-06/94
ENCODE AS proposal and	

Comments on ENCODE AS	ULSIG-159-06/94

Friday Morning, 10 June 9:00 - 12:00 Virginia Room

How does OSI fit into the Information Highway vision?

Papers:

FIRP Report	ULSIG-157-06/94
IPIR Charter	ULSIG-158-06/94
Comments on XIWT	ULSIG-154-06/94

Friday Afternoon, 10 June 2:00 - 5:00 Virginia Room

Conclusion
What can we do in the future?

Outputs:	Meeting Report	ULSIG-165-06/94
	Liasion to ISO on Strategy Bd	ULSIG-167-06/94
	Informal Memo to IPIR	ULSIG-168-06/94