## 1.1  CDC 6000/70/170 Family Tree

### 1.1.1  Introduction

Following is a partial history of CDC operating
systems.  Also included is the nomenclature used
for each of the KRONOS-NOS and SCOPE-NOS/BE releases.

Figure 1 is a geneology chart of CDC's operating
systems for 6000, CYBER 70L and CYBER 170 computers.
Like all good American geneologies, it includes a few
horse thieves.  We won't say who they are.

There were actually more operating systems than are
named on the chart.  Each dot represents a version.
However, there were never more operating systems
than manufactured CPU's.  Well, there were,
actually.  But only at first.  We had three underway
before the first 6600 ran.  There were three
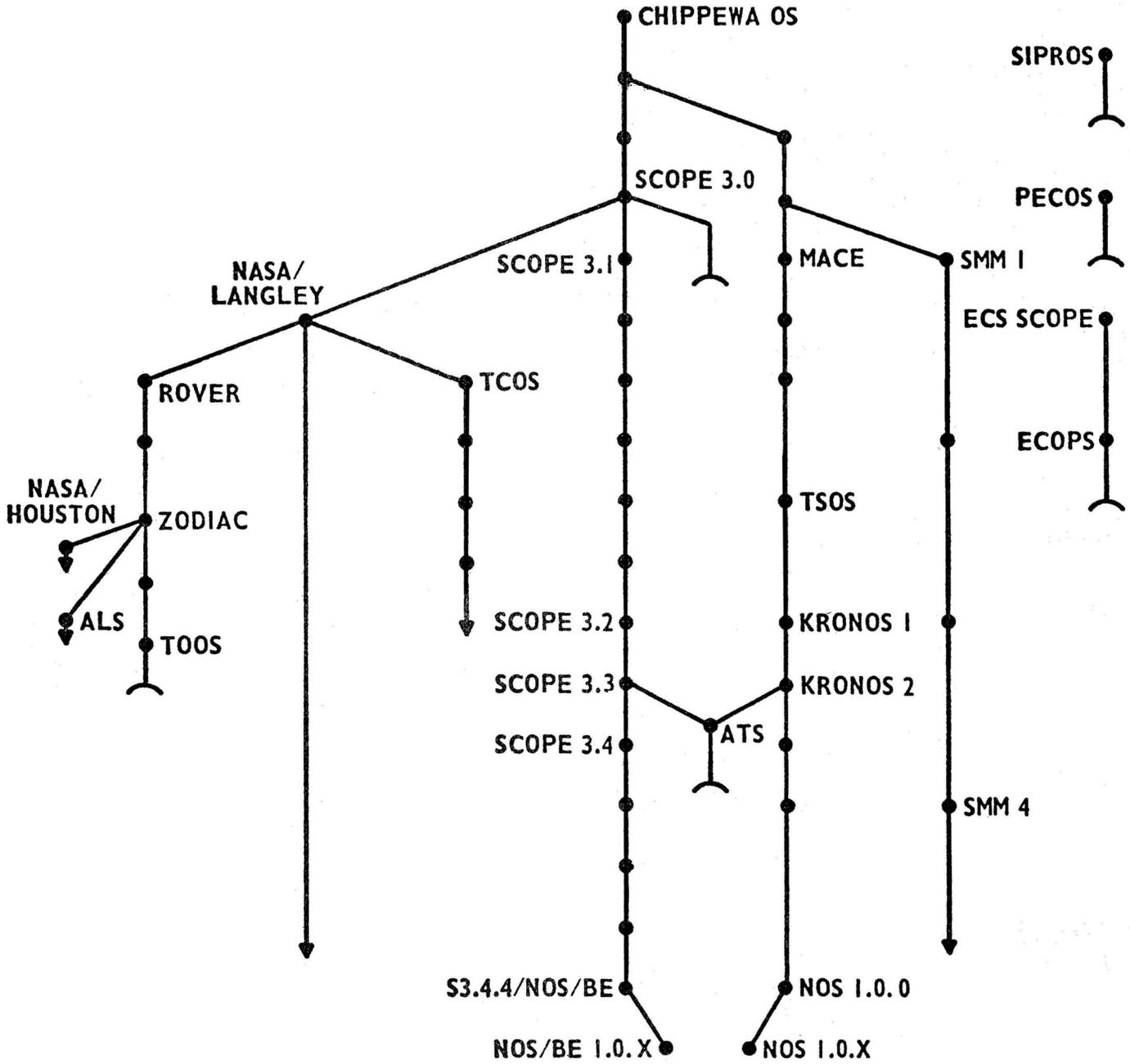FORTRAN compilers too.  So for awhile, software
was ahead.

You will notice that all these systems are descended
from the CHIPPEWA operating system except those on
the right.  Not shown on the chart are ECS SCOPE
and ECOPS which are also CHIPPEWA descendents.
The lesson to be learned from the failure of the
fresh starts, SIPROS and PECOS, is one in economics.
It costs more to develop and market a system than
can normally be afforded.

Looking at the structure of the chart, we see the
standard system, the main branch of the family as
it were, SCOPE, running down the middle.  To its
right is the more recently begotten KRONOS.  On its
right is SMM, which is used by the customer engineers
to maintain the hardware.

To the left we find Great Aunt NASA/LANGLEY with
her brood of special systems.  This has been a
prolific branch of the family, although not always a
wealthy one.  It is now dying out as the standard
systems pick up the features and customers from
the specials.  The TCOS users have gone to SCOPE 3.3.
NASA/HOUSTON and NASA/LANGLEY are going to KRONOS 2.1.
ALS is going to SCOPE 3.4.

# COMMON O/S MODULES
# OPERATING SYSTEM GENEOLOGY

CHIPPEWA OS

SIPROS

SCOPE 3.0

PECOS

NASA/
LANGLEY

SCOPE 3.1

MACE

SMM 1

ECS SCOPE

ROVER

TCOS

ECOPS

NASA/
HOUSTON

ZODIAC

TSOS

ALS

TOOS

SCOPE 3.2

KRONOS 1

SCOPE 3.3

KRONOS 2

SCOPE 3.4

ATS

SMM 4

S3.4.4/NOS/BE

NOS 1.0.0

NOS/BE 1.0.X

NOS 1.0.X

## 1.1.2   History of SCOPE {Simutaneous Control Of Program Execution}

SCOPE is the name which was given to the productized
version of the Chippewa operating system.  CDC's
original plan was to make SIPROS the standard system,
but when it was delayed and a sizeable customer
base developed using Chippewa, the plan was changed.

SCOPE has been under continuous development in Sunnyvale
since 1965.  Several changes in emphasis occured
during this development history, usually associated with
significant milestones.  In 1967, SCOPE 3.0 was released.
This release represented a significnat extension of the
features that were previously available.  By 1970,
when SCOPE 3.3 was released, performance enhancements were
needed.  The I/O system was restructured at that time.

A major step was taken in 1972, with the release of
SCOPE 3.4.  This version added significant new
features, including the record manager which is the
basis of our data management products.  It also
marked the beginning of the era in which the ideas about
compatibility and commonality were consciously promulgated,
proved and improved.  Future operating systems developed
from this base will be called NOS/BE.

## 1.1.3   History of KRONOS {Greek God of Time}

KRONOS, like SCOPE, has its origin in the Chippewa
operating system.  Unlike SCOPE, it did not immediately
become a widely used product.  It spent several
years {under the code name "MACE"} as a high-
performance benchmark system {TSOS}.  Incidentally
TSOS was developed for Unit Computing Systems, one of
several large, successful commercial time sharing
companies that use KRONOS based systems.

The name KRONOS was first used in 1970.  KRONOS 1
was the product CYBERNET Services used to expand their
existing remote batch capability into a time sharing
service.  The major emphasis in this productized
version of a high performance operating system was
reliability.

KRONOS 2.0, released in 1971, was primarily an extension
of the features of KRONOS 1.  This emphasis was continued in
KRONOS 2.1, released in 1973.  The 1973 version
incorporated the same product set and data management
system as SCOPE, signalling the first real break-
through in our move toward commonality.  It also included
the TRANEX subsystem for transaction processing.

Future operating systems developed from this base will be called NOS.  The current emphasis is on providing additional features while extending the commonality between NOS and NOS/BE.

It is interesting to note the oscillation, in these development histories, between emphasis on capabilities, performance, and reliability.  All three are needed in ever increasing degrees to keep us abreast on our advancing competition.

| SYSTEM VERSION | LEV. | RELEASE DATE | SYSTEM VERSION | LEV. | PROD. SET LEVELS | RELEASE DATE | SYSTEM VERSION | PROJECT LEVELS | RELEASE DATE |
|---|---|---|---|---|---|---|---|---|---|
| KRONOS 2.0 | 0 | 71/02/15 | | | | | | | |
| | 1 | 71/04/09 | | | | | | | |
| | 2 | 71/06/14 | | | | | | | |
| | 3 | 71/07/29 | | | | | | | |
| | 4 | 71/09/21 | | | | | | | |
| | 5 | 71/10/29 | | | | | | | |
| | 6 | 71/12/17 | | | | | | | |
| | 7 | 72/03/01 | | | | | | | |
| | 8 | 72/05/24 | | | | | | | |
| | 9 | 72/07/25 | | | | | | | |
| | 10 | 72/10/26 | | | | | | | |
| | 11 | 73/01/16 | | | | | | | |
| | 12 | 73/06/14 | KRONOS 2.1 | 0 | | 73/07/02 | | | |
| | 13 | 73/08/15 | | 1 | | 73/08/15 | | | |
| | 14 | 73/10/14 | | 2 | | 73/10/14 | | | |
| | 15 | 73/12/13 | | 3 | | 73/12/13 | | | |
| | 16 | 74/02/28 | | 4 | | 74/02/28 | | | |
| | 17 | 74/06/25 | | 5 | | 74/06/06 | | | |
| | | | | 6 | | 74/08/04 | | | |
| | | | | 7 | 388/387 | 74/10/18 | | | |
| | | | | 7 | 388/387 | 74/12/13 | | | |
| | | | | 8 | 393/393 | 75/01/17 | | | |
| | | | | 9 | 397/397 | 75/03/05 | | | |
| | | | | 10 | 404/401 | 75/06/19 | NOS 1.0.0{R1} | 404/401 | 75/06/09 |
| | | | | 11 | 411/410 | 75/09/09 | | 411/410 | 75/10/01 |
| | | | | 12 | ? | {76/04/ ?} | NOS 1.1{R2} | 419/420 | 76/03/08 |

| SYSTEM VERSION | LEV. | RELEASE DATE |
|---|---|---|
| Chippewa | | 11/65 |
| SCOPE 2.0 | | 9/66 |
| SCOPE 3.0 | | 8/67 |
| 3.1 | | 7/68{?} |
| 3.1.1 | | 8/68{?} |
| 3.1.2 | | 9/68{?} |
| 3.1.3 | | 12/13/68 |
| 3.1.4 | | 1/24/69 |
| 3.1.5 | | 3/69 |
| 3.1.6 | | 7/7/69 |
| 3.2 | | 12/8/69 |
| 3.2.1 | | 4/70 |
| 3.3      0 | | 9/18/70 |
| 1 | 246 | 4/14/71 |
| 2 | 261 | 8/24/71 |
| 3 | 304 | 5/22/72 |
| 3.4      0 | 320 | 8/25/72 |
| 1 | 348 | 5/04/73 |
| 3.4.1 | 366 | 11/19/73 |
| 3.4.2 | 377 | 5/31/74 |
| 3.4.3 0 | 387 | 12/31/74 |
| 1 | 397 | 4/07/75 |
| 2 | 401 | 6/06/75 |
| 3 | 406 | 8/08/75 |
| 3.4.4 0 | 410 | 10/31/75 |
| 1 | 414 | 2/10/76 |
| NOS/BE 1.0 | | 2/10/76 |