From Prune Shed
to Fortune 500
Ken Oshman 1968

Starting Up Silicon Valley
Walter Loewenstern
1968

Starting Up Silicon Valley
Gene Richeson
1968

Starting Up Silicon Valley
STARTING UP SILICON VALLEY

HOW ROLM BECAME A CULTURAL ICON AND FORTUNE 500 COMPANY

KATHERINE MAXFIELD
The Tech World in 1968

No microprocessors
No semiconductor memories (Intel founded in 1968)
No local area networks
No internet
No Windows and Linux
No personal computers
State of the art in digital semiconductors:
   Medium scale integration TTL (4-bit ALUs)
Prune Shed (1969) ➔ Vallco Office Park

Starting Up Silicon Valley
CPU –
16-bit instructions
Data General Nova instruction set and I/O bus

MEMORY –
Core memory, 2.4 μsec cycle time
4K x 16 modules
Expandable to 32K

PACKAGING –
ATR (air transport rack)
10” W x 7” H x variable L
Conductively cooled
14 slots for CPS, memory, I/O options, hardware multiply/divide option
Bolt-on memory modules

MIL-SPECS –
Temp -55 to + 95 C
Vibration: 10g, 5-2000 Hz
Shock: 15g
Humidity: 95% RH
EMI
Salt Spray

RuggedNova
Mil-Spec
1601 (1969)
ROLM Rugged 1602
ROLM-Designed

CPU
Microprogrammed (32 bit μ-instructions, clock rate 5 MHz)
Augmented DG instruction set including
Hardware MPY/DIV
Stack processing
Vectored and nested interrupts
File search
32 bit arithmetic

MEMORY
Core memory, 1.0 μsec cycle time
8K x 16 modules
Expandable to 64K
PBX Switchboard (1968)

Photo by Arnold Del Carlo,
Sourisseau Academy for State and local History, San Jose State University

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ROLM CBX 1975
Attendant’s Console

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Minicomputer-based Branch Exchange

Repackaged ROLM mil-spec 16 bit CPU with 4K semiconductor RAM memory chips

128 KB memory

Digital Time-Division Multiplexing of voice/data on parallel backplane

12 bit linear ADC, 12 KHz sampling rate for analog-digital conversion of voice

Up to 800 telephones
CBX User Capabilities

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ROLM IPO
September 1976
$14 per share

Oshman Maxfield Loewenstern Richeson

Starting Up Silicon Valley
We don’t care.
We don’t have to.
ROLM
4900 Old Ironsides Drive
Santa Clara

Starting Up Silicon Valley
Lap Pool – 3 lanes
Jacuzzi
Full Gym
Running Track
Swim Pool
Sauna
Par Course
Tennis Courts

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Great Place to Work – GPW

Attract New Employees
Retain Existing Employees
Team Work
Accountability
Generous Rewards tied to Profit
ROLM Telecommunications 1979-1984
Product Introductions

VSCBX (24 extensions)
VLCBX (4000 extensions, 32-bit architecture, multi-node)
ROLMNet
Data Switching (route data terminal-to-computer communications thru the CBX)
ETS 200 & 300 (electronic telephone sets)
ROLM Analysis Center (generate reports allocating phone costs by dept, extension)
CBX Management Reporter
Software Releases 6 & 7
FlashPhone
Remote Polling
Autovon Compatibility
PhoneMail
ROLM Gateway
Automatic Facilities Test System
X.25 Interface
CBX II
ROLMLink (voice, high-speed data & power transmitted over one twisted pair of wires)
ROLMphones 120, 240, 400
Cypress (integrated voice/data terminal)
Cedar (Cypress with integral IBM PC compatibility)
Juniper (connected a ROLMphone and IBM PC for voice/PC feature integration)
ROLM Telecommunications 1979-1984
Product Introductions

Market Blockbusters

VSCBX (24 extensions)
VLCBX (4000 extensions, 32-bit architecture, multi-node)
ROLMNet
Data Switching (compressed data signals sent from terminal to CBX)
ETS 200 & 300 (electronic telephone sets)
ROLM Analysis Center
CBX Management Reporter
Re 6 & 7
FlashPhone
Remote Polling
Autovon Compatibility
PhoneMail
ROLM Gateway
Automatic Facilities Test System
X.25 Interface
CBX II
ROLMLink (transmitted voice, data & power over on twisted pair of wires)
ROLMphones 120, 240, 400
Cypress (integrated voice/data terminal)
Cedar (Cypress with a keyboard)
Juniper (connected a ROLMphone and IBM PC)

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VLCBX in Test

New 32 bit CPU and instruction set (used 4-bit ALUs)
New system programming language (RPL)
New real-time operating system
New token-ring peer-to-peer LAN
New application code base
Distributed peer-to-peer processing with up to 10 processor nodes
Up to 4,000 phones

Starting Up Silicon Valley
VSCBX (24 extensions)
VLCBX (4000 extensions, 32-bit architecture, multi-node)
ROLMNet
Data Switching (compressed data signals sent from terminal to CBX)
ETS 200 & 300 (electronic telephone sets)
ROLM Analysis Center
CBX Management Reporter
Release 6 & 7 & 8
FlashPhone
Remote Polling
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ROLM Gateway
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ROLMLink (transmitted voice, data & power over one twisted pair of wires)
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Cypress (integrated voice/data terminal)
Cedar (Cypress with a keyboard)
Juniper (connected a ROLMphone and IBM PC)
Integrated voice-data terminal

Integrated ROLMphone functions

64 Kbps serial data communication

Single twisted pair ROLMLink voice/data link to CBX

9” monitor

Slide-out keyboard
Up and to the Right

ROLM Revenue

Sales Revenue


Starting Up Silicon Valley
ROLM’s Vision 1983

CBX
The Hub of Corporate Voice and Data Communications

Phones on Desktops
Dumb Terminals on Desktops
Transmit ALL those 1 & 0s over ONE PAIR OF WIRES to the CBX
CBX distribute signals to Processor

FIND A DATA PARTNER!

Starting Up Silicon Valley
THE BIGGEST DEAL
in SILICON VALLEY

ROLM, an IBM Company
$70 per share
40x ROI over IPO
Nov. 1984
From Prune Shed          1969
to Fortune 500            1983
to IBM Company           1984
to Siemens Company       1988

Starting Up Silicon Valley
CBXs and ROLMphones Still in Use
Newseum, Washington DC

ROLLMphone Marks Entry to the Digital Age

“Historians will ... marvel at the power of instant communications to spread the truth, the news and courage across borders.”

Speed has always been a primary concern in the gathering and telling of news. The substance of news has changed little over time. What has changed has been the speed at which news travels. Early telephones required an operator’s assistance; rotary dial and touch-tone telephones allowed direct and ever faster connections. Modern cell phones gave reporters greater mobility. News travels as rapidly as technology allows.
STARTING UP SILICON VALLEY

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