

# Genesis of CallerID and Call Center Industry

A presentation by  
**Aleksander Szlam**

Georgia Tech Alumnus  
Immigrant | Inventor | Entrepreneur  
Founder and CEO of Melita International Inc





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## How it all began...Miracles? Destiny?



Kwidzyn, Poland, Summer 1965

Met Halina while attending summer camp in 1965, Kwidzyn Poland at age 14.

Corresponded and visited each other's town, but lost contact by 1967.

*Miraculously*, during 1969 emigration, met again on Vienna train platform heading to Rome, Italy.

Fortunately as it turned out, both families decide on USA as final destination.

*Miraculously*, both families received USA entry visas and we flew to New York sitting side by side April 9, 1970.

Fell in love and married Sep 8, 1973.





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# Life at Georgia Tech



James Dull  
Dean of Students (1964-  
1992)



- Dean Dull admitted me on “probation basis” without exams, unable to speak English, and without completing high school (*third miracle*).
- Soon after, I was introduced (*fourth miracle*) to associate professor John Lucas (who spoke Polish). John arranged frequent music ‘gigs’ for our rock-and-roll group made up of my cousins and me. He returns later...
- Received BSEE’74 and MSEE’80. Remained connected to Ga Tech ever since.
- Halina and I created scholarship programs for undergraduate and graduate students in 1997.
- Joined ECE Advisory Board and remained active for over 15 years.
- Joined Yellow Jackets Mentoring program, judging at Capstone innovations.





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# Post Georgia Tech

Gained electronic design experience at:

- NCR in Columbia, SC 1975
- Century Data Products, Atlanta 1977
- Solid State Systems in 1978 (where I learned much about PBX telephone systems).
- Lockheed R&D team, Marietta GA 1980. Here I was able to complete MSEE'80 (started at USC).

Late in 1979, John Lucas of Ga Tech reappeared with an answering machine asking for modifications to make outgoing calls.







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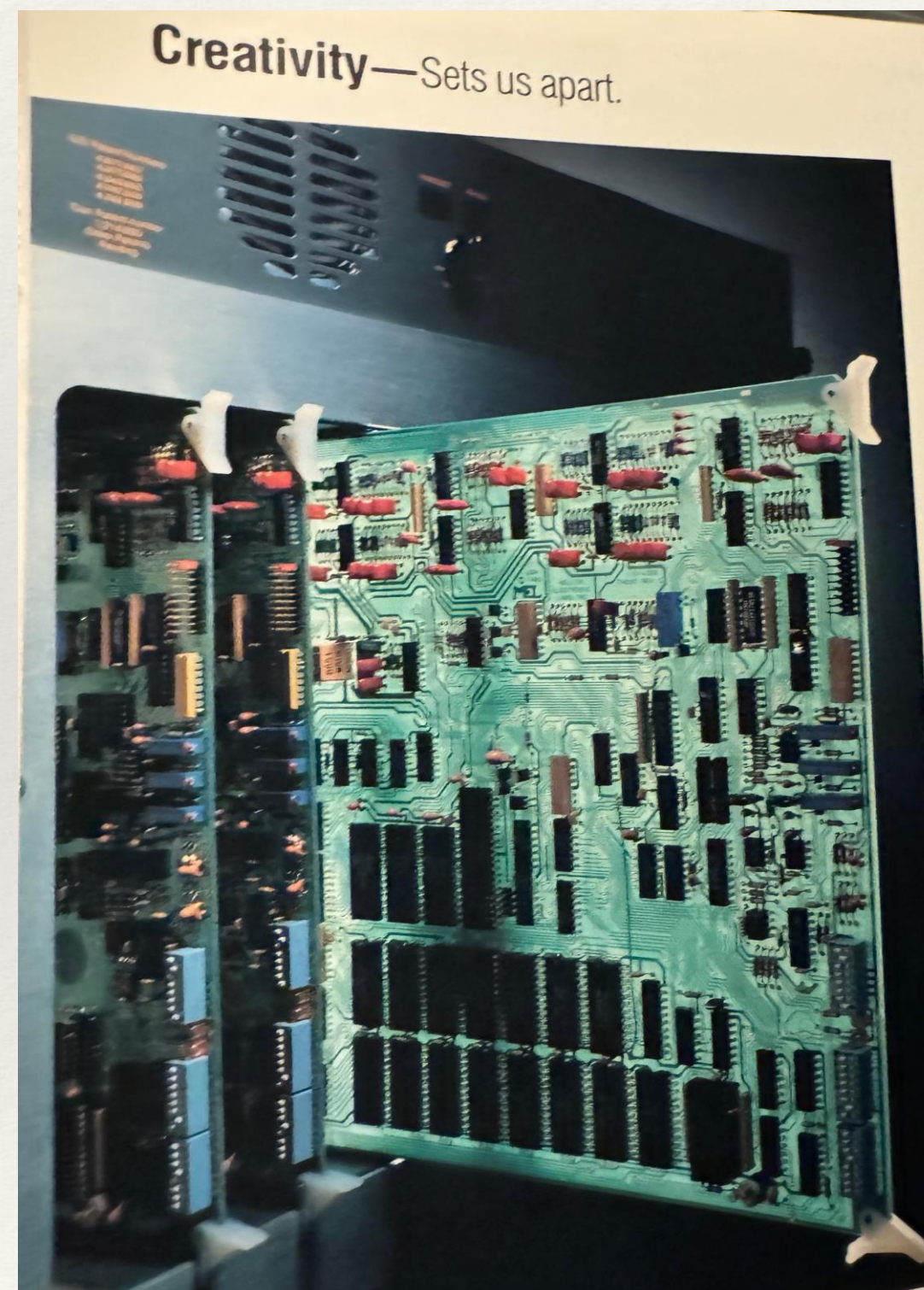
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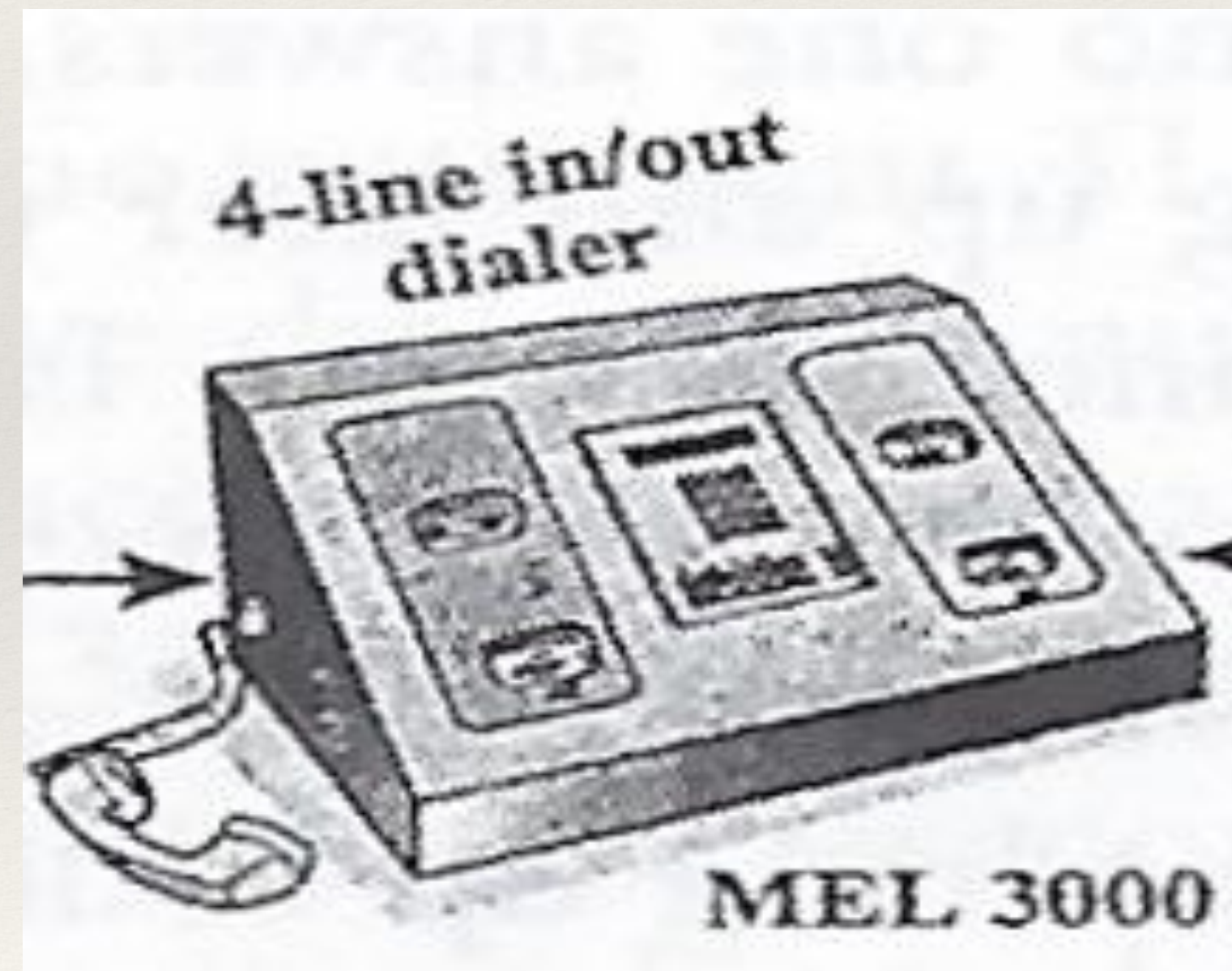
# Start of Revolutionary Creations

Expedialer

Designed and built **semi-automated** telephone dialer, *Expedialer* for verifying deliveries



1979 Original Expedialer board







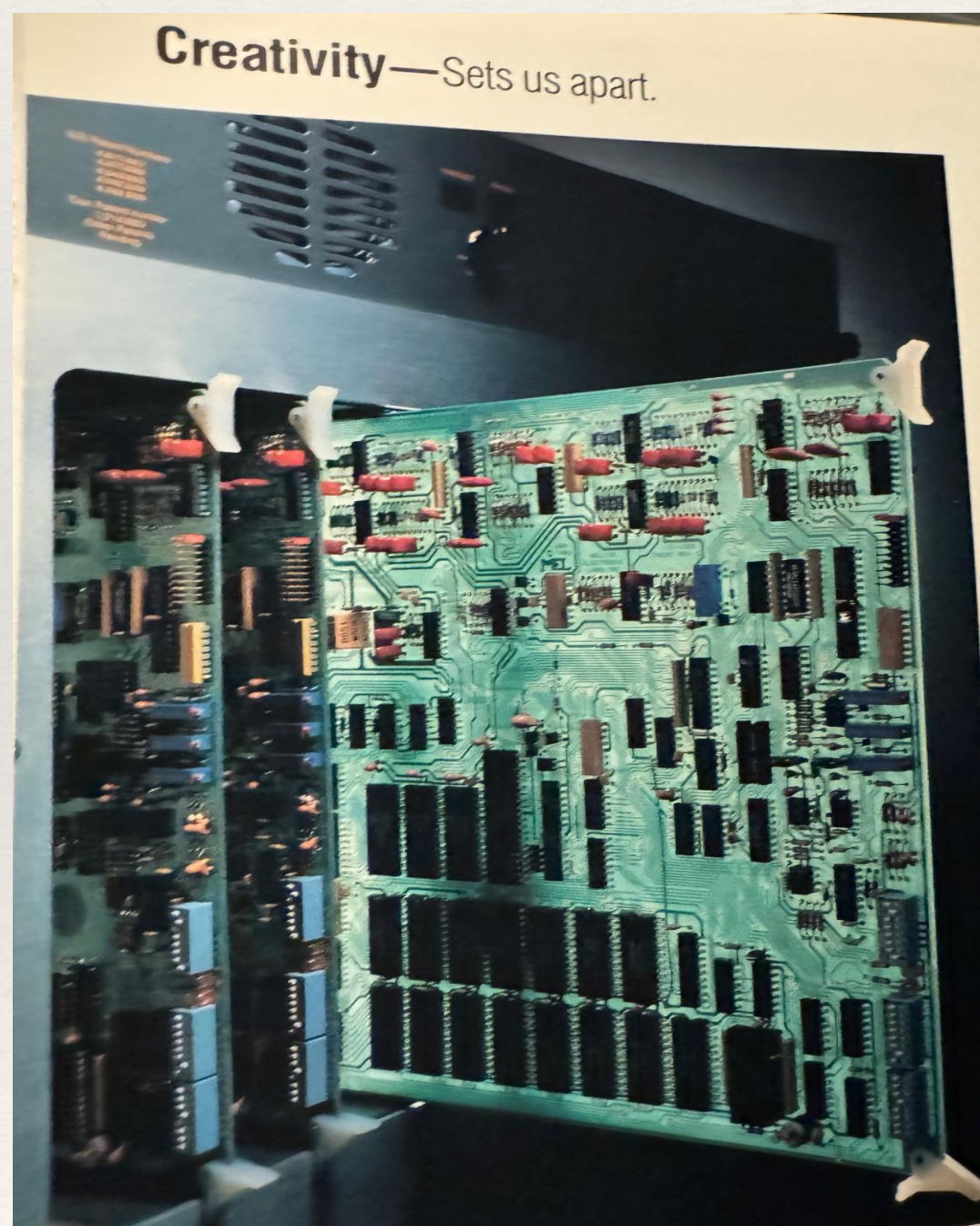
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# Start of Revolutionary Creations

Expedialer



1979 Original Expedialer board

While at Solid State Systems,  
overheard conversation regarding  
Wisconsin Public Services  
Emergency Dispatch of crews  
during critical weather conditions:

*“... people have died due to power down  
and freezing conditions...”*





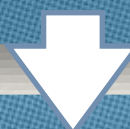
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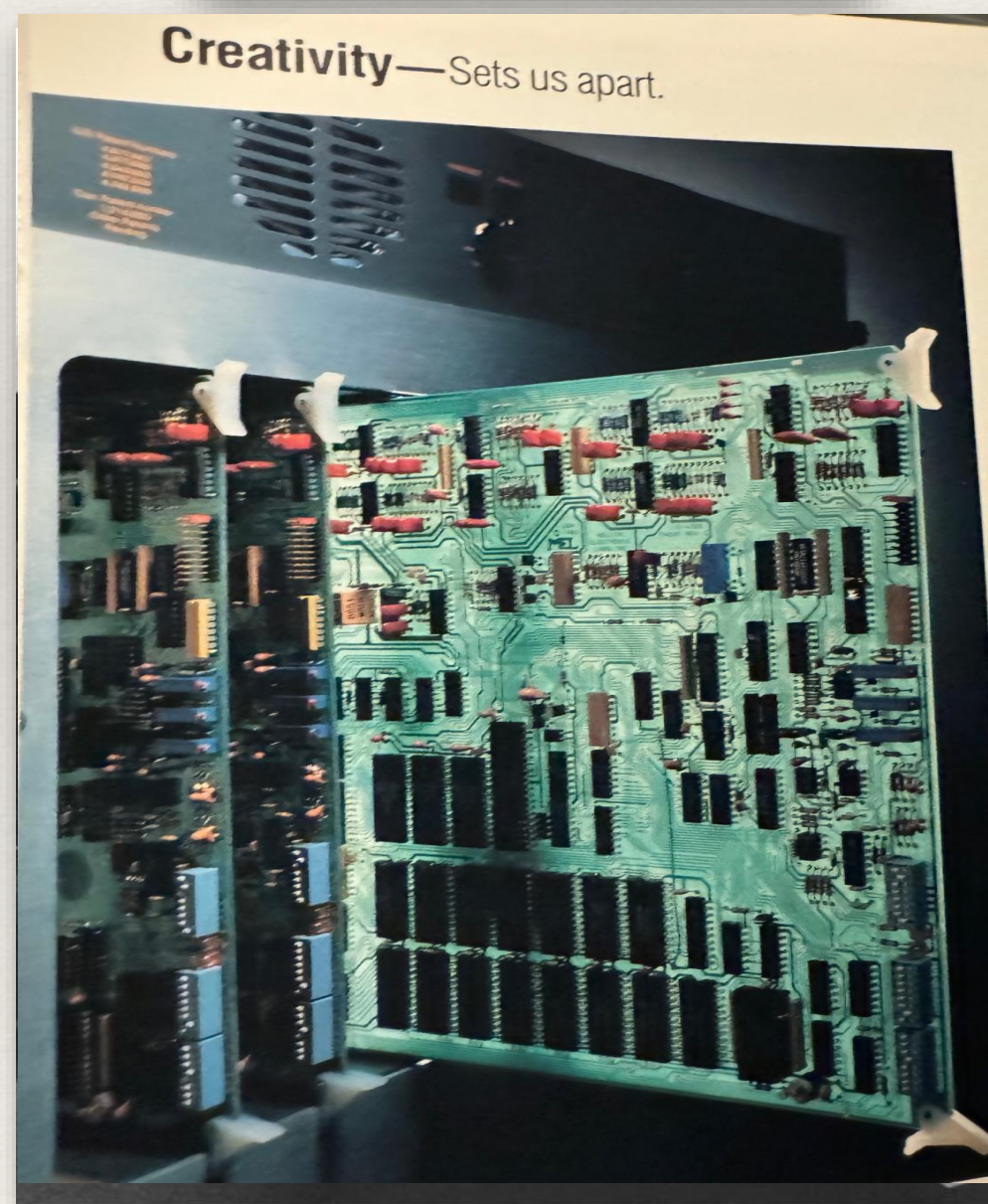
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# Start of Revolutionary Creations

Expedialer



Compudialer



1979 Original Expedialer board

Got permission to work on my own time creating automated emergency dispatching solution

Decided to incorporate company under sister's name Melita:

**Melita Electronic Labs, Inc.**

Meanwhile, with little sleep, working full time, completing MSEE'80 degree – I finalized design and testing of the solution called *Compudialer*

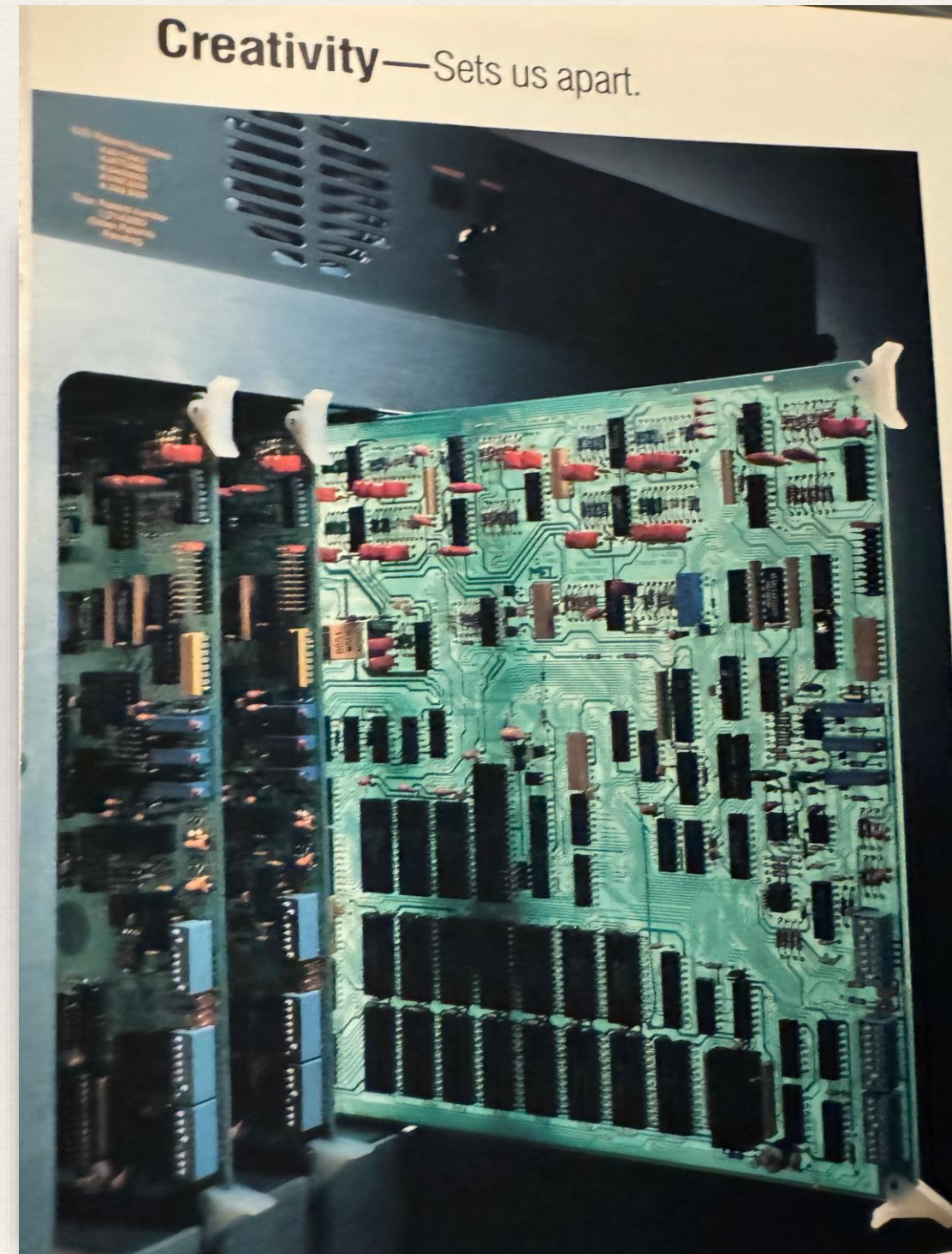




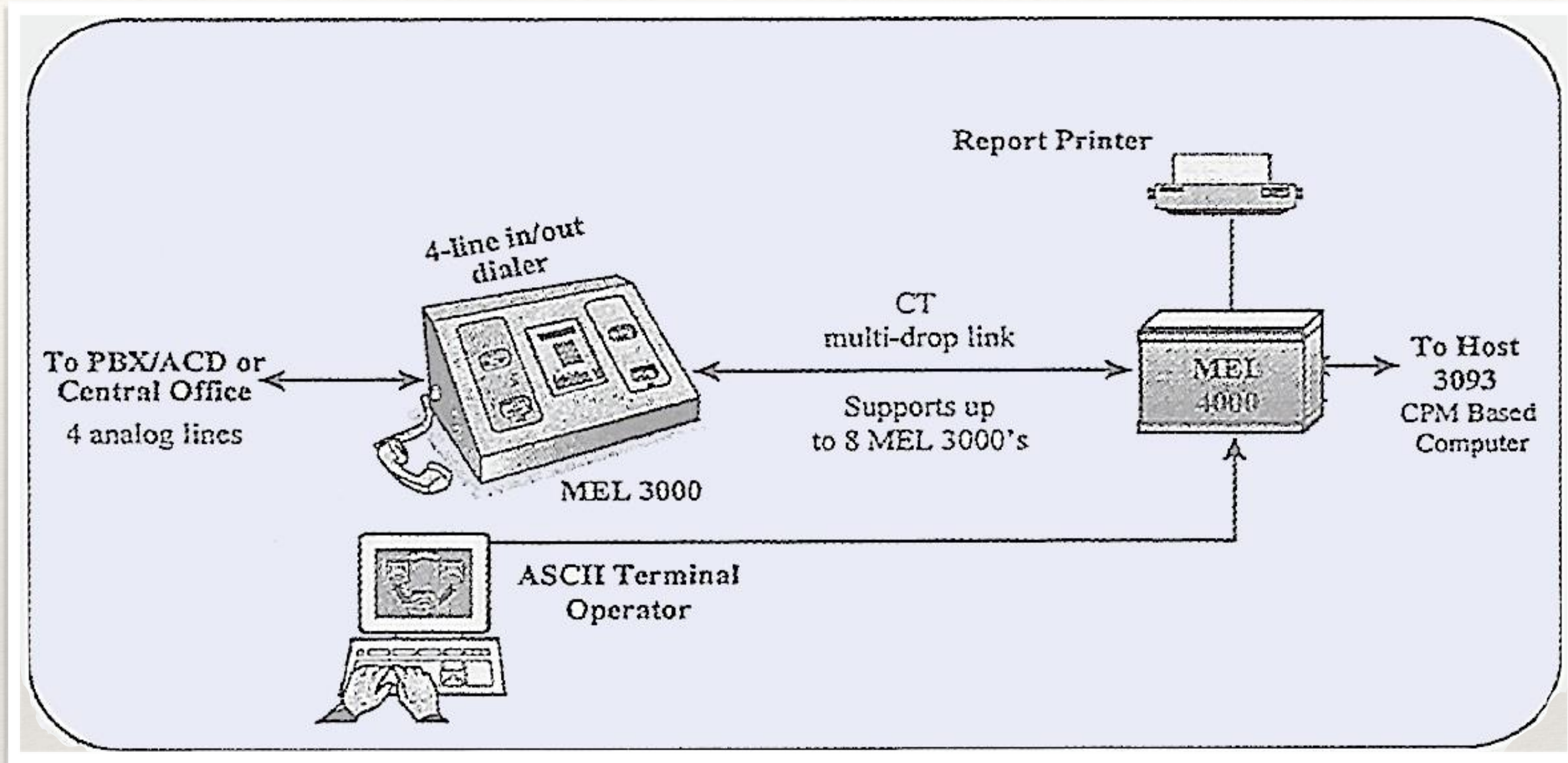
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# Start of Revolutionary Creations

## Compudialer



1979 Original Expedialer board



Wisconsin *Compudialer* design for  
automated Emergency Dispatching  
of repair crews

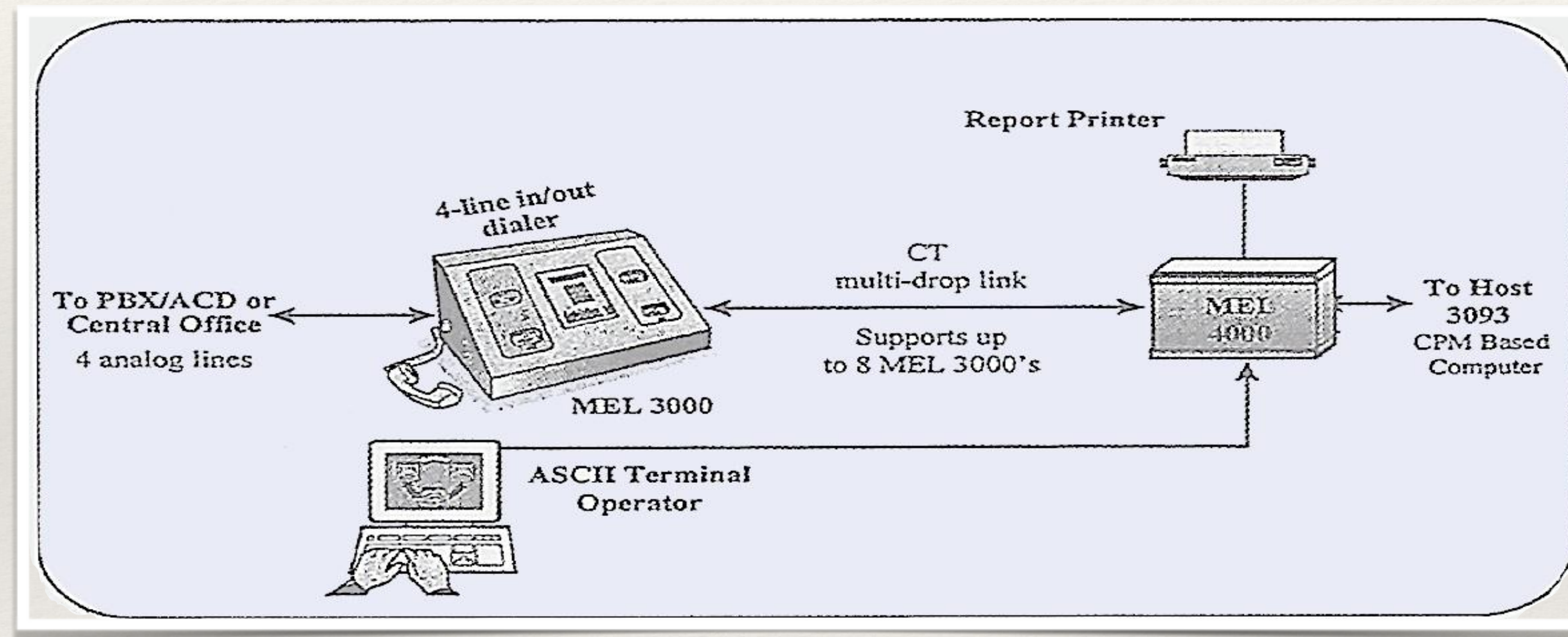




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## How CallerID Became Global Phenomena

Testing *Compudialer* at Green Bay Emergency Center,  
design of 'answer detection' **FAILED!**



YET! **An incredible discovery** put me and  
my company on an ever expanding  
creative trajectory.

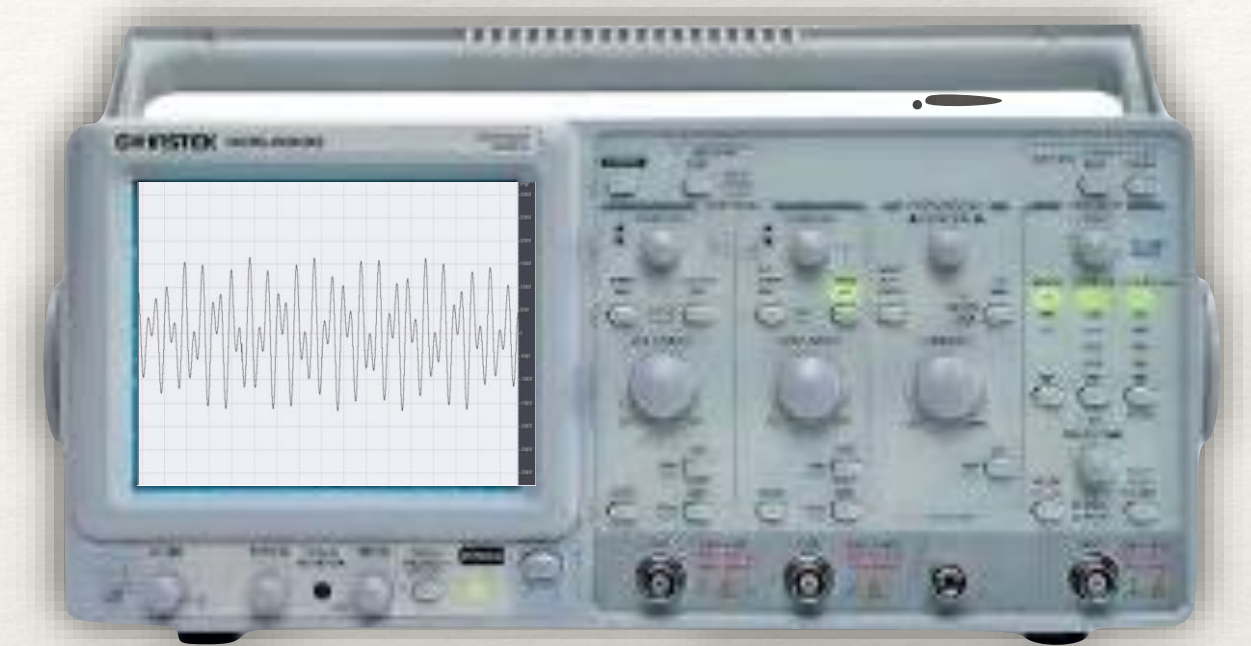




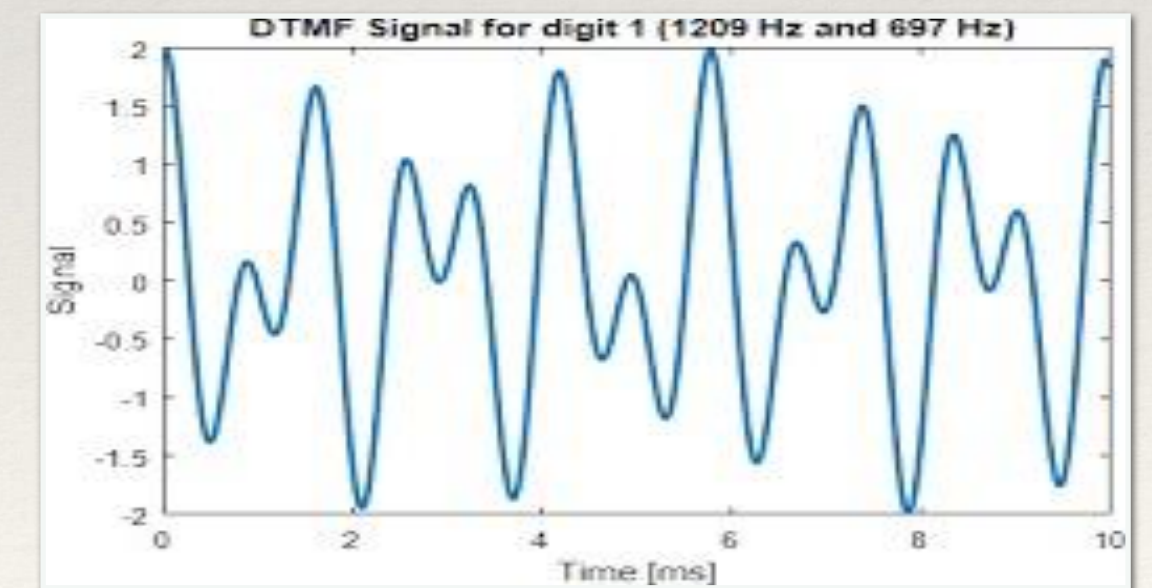
## How CallerID Became Global Phenomena

Telephone set **began to ring**, and my oscilloscope was displaying multiple modulated waveforms.

*These waveforms turned out to represent the phone number of the caller!*



	1209Hz	1336Hz	1477Hz	1633Hz
697Hz	1	2	3	A
770Hz	4	5	6	B
852Hz	7	8	9	C
941Hz	*	0	#	D







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## How CallerID Became Global Phenomena

Flying back home, embarrassed and upset with failure, I suddenly envisioned likely new design for *answer detection*.

***Solution:*** Real-time algorithm for analyzing, measuring and storing amplitudes of ringing patterns while discarding background noises

Interruption of LEARNED ringing signal=*phone being answered*

We named the algorithm  
*“Cadence Detection”*





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## How CallerID Became Global Phenomena

- Discovery and decryption of calling party's telephone number led to **caller's identification**
  - ❖ Telephone number of calling party was used to extract personal information from database and displaying it on agent's terminal screen helping validate the calling party

*telephones had no displays*



- ❖ Solution was first deployed at American Express, Phenix, AZ around 1985/1986 with **ALARMING** occurrence on the very first incoming call.





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## How CallerID Became Global Phenomena

- Over time, Telephone Companies introduced telephone sets with displays, showing name of calling person while charging for the service they named *CallerID*
- ❖ By late 1989 to early 2000, cell phones with displays were introduced and over time spread throughout the globe.
- ❖ CallerID was adapted by all carriers and became a foundation for *Text Messaging (SMS)* and a preferred method for cellular interactions leading to a mobile messaging revolution:

*Skype, FaceTime, WhatsApp, Messenger, etc.*





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# Solution Evolution

## *Continued innovations of telephony based communications*

- By January, 1983 after leaving Lockheed, Halina and I opened our first office under changed name:

**Melita International, Inc.**

- By 1994, we won Los Angeles Unified Schools contract supplying 135 *Sprintels* alerting parents in 40 languages when a child was absent.



*Sprintel*

Enhanced Fully  
Automated  
*Expedialer*





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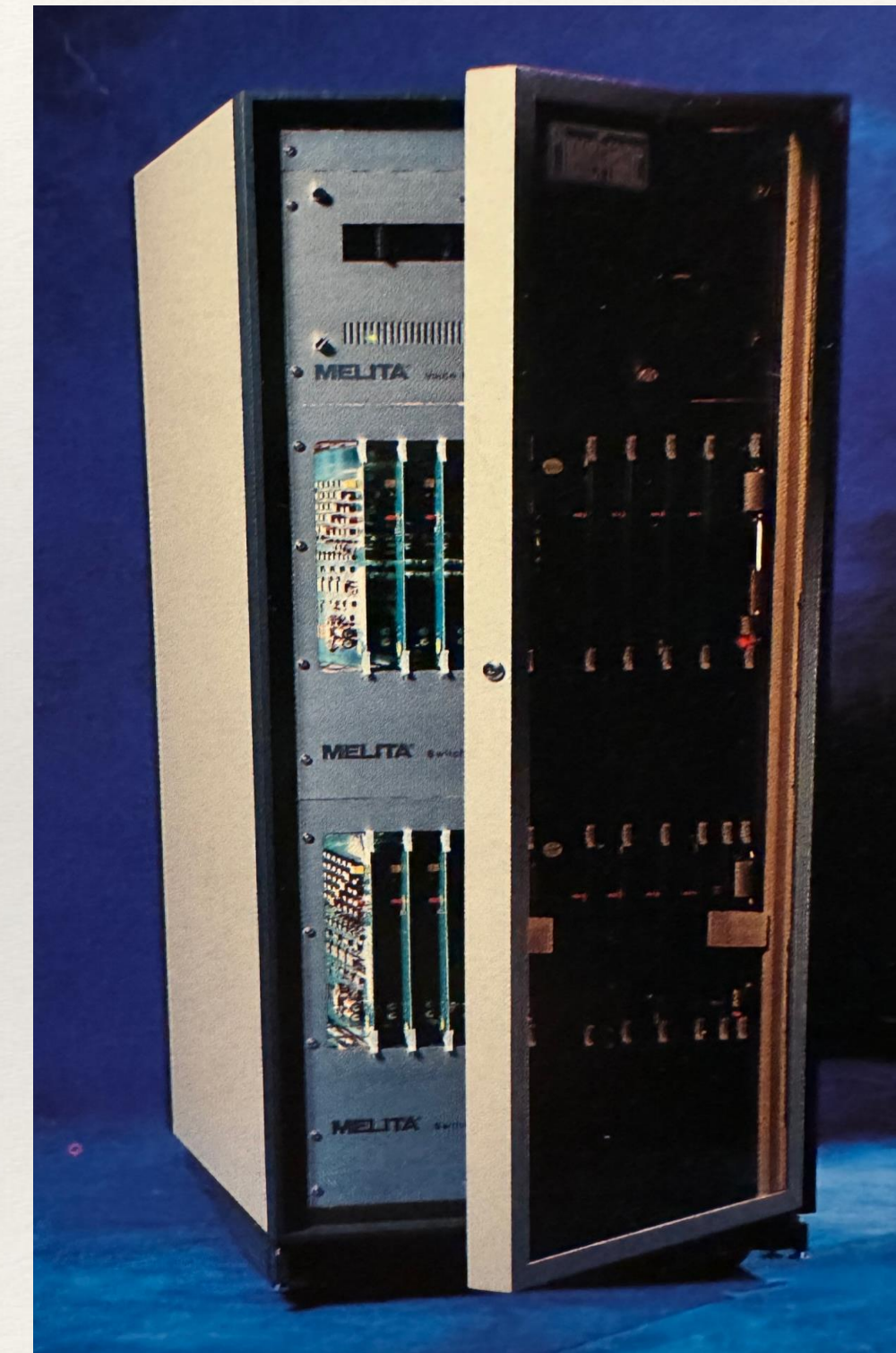
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# Solution Evolution

## *Continued innovations of telephony based communications*

- In 1985 introduced fully automated intelligent outbound calling solution for *Fingerhut's catalog sales* where agents had been manually dialing customers
- Created *PhoneFrame* solution with 50 agents performing the work of nearly 200 using latest invention Predicative Dialing...
- Over time built entirely digital solution called *Conversations* supporting hundreds/thousands of agents



*PhoneFrame*





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# Call Center Industry

## First to Market Innovations

- Accurate *Answer Detection*
- *Automatic Number Identification* (aka CallerID)
- Identifying *telephone call processing* conditions, busy, no answer, and others
- Multi-line *emergency telephone call notification* and dispatching system for utilities, chemical plants, weather-related dangers, blood banks, etc.
- Introduced *Predictive Dialing* algorithms so agents spend 90+% of time interacting with customers instead placing calls, listening to ringing, answering machines, etc. while waiting for them to answer





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# Call Center Industry

## First to Market Innovations

- Introduced personal computers (PCs) as *smart desktop terminals* with *intelligent guiding scripts*
  - ❖ Introduced the award winning intelligent agent desktop application *Magellan*
- Introduced *Computer Telephony Interface* (CTI) with PBX phone systems
- Introduced secure and intelligent *Inbound 'Call Routing' based on CallerID*
- Introduced *Predictive Hold Time Announcements* letting callers chose between waiting for an agent or selecting preferential option for receiving a call back





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# Call Center Industry

## First to Market Innovations

- Introduced *Predictive Inbound/Outbound Call Blending* solutions with agents handling both types of calls *increasing productivity by nearly 400%*
- *Webpages algorithms* detecting confusion, or slow down, providing “pop-up” options to speak with LIVE agent

Melita innovations and business solutions led to the birth of:

*Call Centers \$497B Global Industry*

*Solutions addressed many applications/needs:*

*Customer Services, Debt Collections, Financial Services, Healthcare, Utilities..*





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# Call Center Industry

First to Market brought significant benefits

- The *immense productivity gains* by every agent (*nearly 400%*), the *incredible savings* on personnel/salaries (reduced staffing), and *dramatic increases in both customer and agent satisfaction* led to the explosion and proliferation of Call Centers across the world.
  - ❖ *Millions of jobs created*, and Customer Relations Management (CRM) types of solutions introduced - dramatically improving customer satisfaction.
- Melita introduced trademarks such as Customer Care®, Exceeding Customer Expectations®, Universal Agent®, and Customer Sensitivity® underscoring importance of close customer relationships.
- Melita solutions were installed and supported in over 40 countries.





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# Call Center Industry

## First to Market Innovations

Awarded over 100 US and International Patents.

**Patents:** 4,720,853 “Ring Signal Discriminator”, 4,742,538  
“Current Source”

**Patents:** 4,477,698 “**Detecting answer**” at remote telephone set”  
and 4,540,855 “detecting signals within a passband”

**Patents:** 4,797,911 “Customer account online servicing system”  
and 4,894,857 established ‘**Predictive Dialing**’

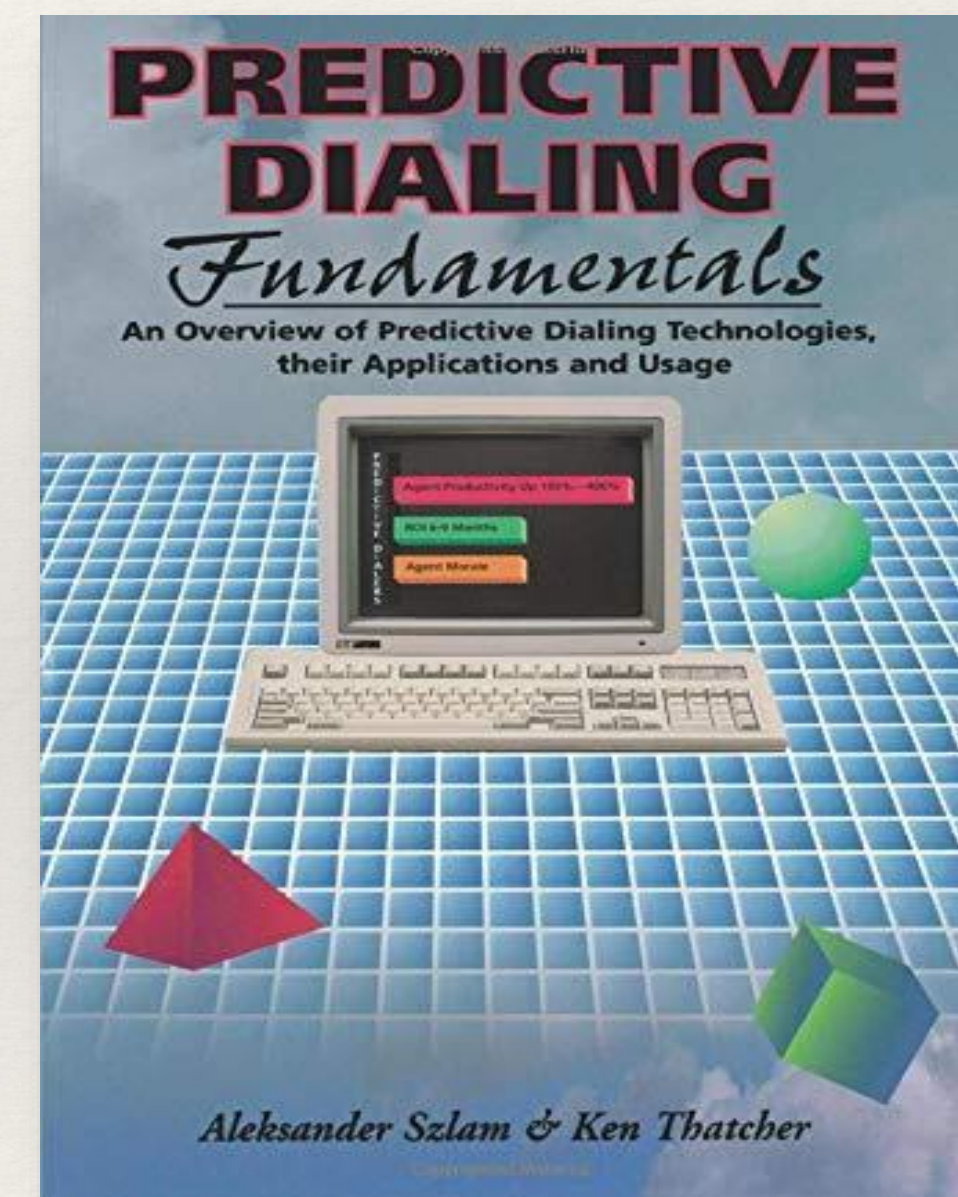
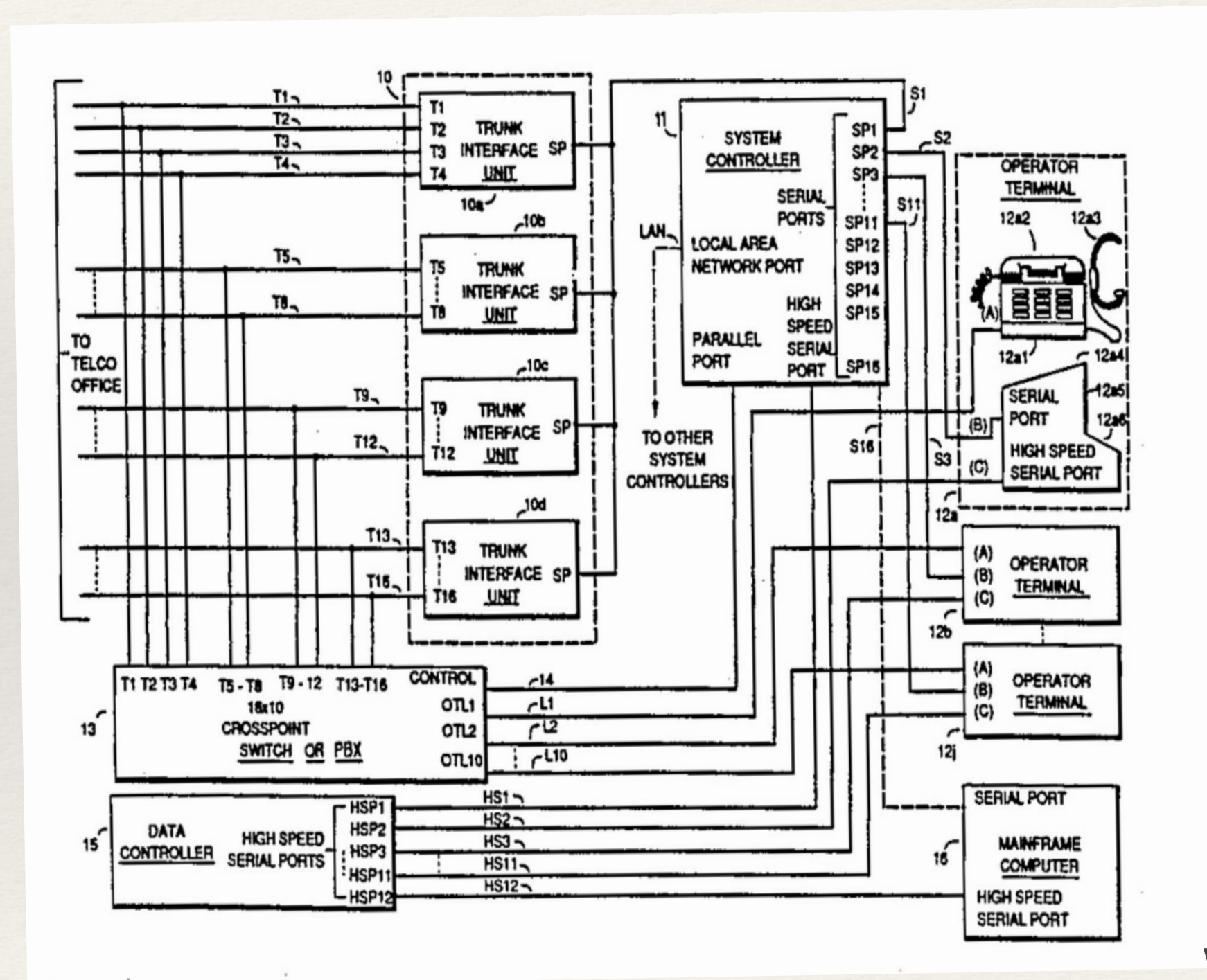
**Patents:** 4,797,911 **Claim 42**, 4,894,857 **Claim 10** and **Claims** of  
5,675,637 responsible for what became known as ‘**CallerID**’

**Patents:** 5,214,688 and RE36,416 named “Method and apparatus  
for dynamic and interdependent processing of **inbound and  
outbound calls**”

**Patents:** 5,309,505 and 5,511,112 named “Automated voice  
system for improving agent efficiency and **improving service to  
parties on hold**”

**7. Patents:** 5,594,791 and 5, 963,635 named “Method and  
apparatus for providing result-oriented customer service” **enable  
capture of Customer Sensitivity® profiles**

**Patent:** 8,402,070 “Training, certifying, assigning and  
collaborating agents among multiple sites ” **extends the reach  
and deployment of unified Contact Centers across the globe.**



We literally “wrote the book” on  
Predictive Dialing

Diagram of Patent' 911 - Predictive Dialing





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# Debt-Free Growth

## Melita International, Inc.



*Melita Int'l, Norcross, USA Headquarters*

- In 1983, after leaving Lockheed, Halina and I decided to open our first 3000 sqf. facility. Later, expanded to 6,000 sqf, then 40,000 sqf. + add'l 50,000 sqf.
- By 1995, as the sales grew an order of magnitude, we decided to construct and acquire our own 110,000 sqf. high-tech facility accommodating over 500 employees, production/assembly, systems testing, engineering, and everything else.
- Soon, we acquired building in Chertsey, England as our European Headquarters and naming it **Melita House**.
- From Melita International team innovations, an entire industry emerged. The groundbreaking solutions not only redefined telecommunications but also laid the foundation for a global Contact Center Industry.





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# Debt-Free Growth

## Melita International, Inc.

Devised innovative approaches for self-financing to avoid debt

- Negotiated with electronic component suppliers keeping inventory ALWAYS READY TO DELIVER, invoicing after products shipped.
- IBM expensive servers inventoried at our facilities and invoiced after systems shipped.
- Required customers to pay 50% upfront for entire solutions at times costing millions of dollars. Overtime, increased to 75%-90% upfront while often it took three months or more to build, test and deliver.



*Melita House, European Headquarters, UK*





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# Building a Team

## Melita International, Inc.

Halina and I created opportunities for our employees to succeed.

- Offered stock options, healthcare coverage, quarterly company updates, support for families/children, annual family activities, employee cookouts, gym with showers, outdoor jogging path, performance-based bonuses, employee excellence recognition with paid-for trips, annual holiday party, etc.
- Employees hired based on character, team participation, attitude, and vision.
- IPO on NASDAQ in 1997 rewarding employees' years of dedication.



*Melita Int'l, Norcross, USA Headquarters*





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# Strong Partners

## Melita International, Inc.



*Melita Int'l, Norcross, USA Headquarters*

- Partnered with outstanding outside services: CPAs, patent attorneys, business attorneys, board members, etc.
- Sales and support offices around the globe staying close to customers.
- European Headquarters in London, UK in 1989.
- Several USA and international offices: Paris, Singapore, Australia, Mexico, Colombia, with dozens of reseller partners.
- Major software R&D investments in US and Krakow, Poland.
- Investments in IP with large portfolio of US and International patents and key trademarks.





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# Conclusion

JUST THINK of the unthinkable...

How basic answering machine “design enhancements” led to the creation and proliferation of a Call Center Industry around the globe, *including mobile messaging!*

**THANK YOU!**

Q&A

References:

<https://www.linkedin.com/in/aleksander-szlam-793160>

<https://melitainternational.com>